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ABOUT OUR AUTHORS

THEODORE O. YNTEMA is chairman of the Finance Committee of Ford Motor Company. Before joining Ford in 1949, Mr. Yntema was a member of the faculty of the School of Business of the University of Chicago for twenty-five years, as professor of statistics from 1930 to 1934, and as professor of business and economic policy from 1944 to 1949. Between 1942 and 1949 he was also research director of the Committee for Economic Development. Mr. Yntema is a trustee of the Committee for Economic Development and a director of the National Bureau of Economic Research and of the National Industrial Conference Board.

WILLIAM VICKREY is professor of economics at Columbia University, where he has been teaching since 1946. He obtained a B.S. in Mathematics at Yale in 1935 and his M.A. and Ph.D. in Economics at Columbia in 1937 and 1947. He has also worked in the field of public finance for the U.S. Treasury, the Governor of Puerto Rico, the Occupation Authorities in Tokyo, Japan, and the Government of the Distrito Federal (Caracas) in Venezuela. His published work has been chiefly in the areas of taxation, welfare economics, and game theory.

NORMAN C. MILLER is manager of the Economic Research Division in the Department of Research and Statistics, New York Stock Exchange. He was formerly associated with Mutual Life Insurance Company of New York and with the Bureau of Economic and Business Research, Rutgers University.

CHELCIE C. BOSLAND is Eastman Professor of Political Economy at Brown University. He received his B.S. and M.A. degrees from the University of Minnesota and his Ph.D. from the University of Michigan. Before coming to Brown University, he taught at the University of Michigan (1924–26) and at the University of Minnesota (1926–29). He is a former president of the American Finance Association. He has served as a consultant in security evaluation problems, and he is the author of *The Common Stock Theory of Investment* and *Corporate Finance and Regulation* and a number of articles.

JOHN H. KARAKEN, who holds a Ph.D. degree from Massachusetts Institute of Technology, is associate professor of economics in the Department of Economics, University of Minnesota. He is the author of several articles on monetary theory and policy, including "Some Observations on the Radcliffe Report," which appeared in the December, 1960, issue of the *Journal of Finance*, and is currently completing a manuscript on consumer credit for the Brookings Institution.

SEYMOUR P. BLANK received a B.B.A. from the University of Miami in 1956 and a M.A. degree in Economics from Tulane University in 1958. He was an instructor at Tulane University in 1959–60 while continuing graduate studies.

DOUGLAS R. HELLWEG is currently completing the requirements for a Ph.D. degree in Economics at the University of Minnesota.

WINFIELD HUTTON is an assistant professor of economics in the School of Industrial Management, Georgia Institute of Technology. He received his Ph.D. degree from Ohio State University and is currently doing work in the public finance and public control of business areas.

DONALD R. HODGMAN is an associate professor in the Department of Economics, University of Illinois. His current research is on commercial bank loan and investment policy decisions. His "Credit Risk and Credit Rationing" appeared in the May, 1960, issue of the *Quarterly Journal of Economics*.

MURRAY E. POLAKOFF is associate professor of economics at the University of Texas. He received the M.A. and Ph.D. degrees from Columbia University. He has written extensively on economic development, Russian economics, economic history, and economic theory and methodology. He is currently at work on a book to be entitled "Evolution of Monetary Theory."

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ECONOMIC ADJUSTMENTS AMONG NATIONS*

THEODORE O. YNTEMA
Ford Motor Company

LAST JUNE WHEN I accepted your invitation, I planned to say that the United States would probably have a continuing balance-of-payments problem; that this problem might not yield to the remedies currently prescribed; and that, in this contingency, economists should be prepared to tell us what to do. Events of recent months have taken the edge off my speech but perhaps have not entirely obviated the occasion for it.

In the last thirty years the main economic problem of the United States (other than those involved in waging war) has been the attainment and maintenance of a high level of employment and production with as little inflation as possible. I believe it is fair to say that we have developed the economic competence to deal effectively with business fluctuations and with general economic stagnation—except in regard to two factors: wage-price inflation and the international balance of payments. Until very recently, it was generally assumed that in the United States the international balance of payments could be neglected and that wage-price inflation, while undesirable, was perhaps not fatal to the attainment of a dynamic, full-employment economy. Now, suddenly, we find that these factors cannot be neglected.

The great collapse of the economy in 1929–33 was caused, or at least made possible, by lack of liquidity in our money and credit system. Once our banking system was relieved of the obligation to pay out its gold to domestic depositors, the central bank was enabled to provide all the liquidity needed to avert a major deflation like that of 1929–33. This view as to the antideflationary power of the

* This paper was presented at a joint luncheon meeting of the American Finance Association and the American Economic Association in St. Louis, Missouri, on December 29, 1960. The program was under the chairmanship of Theodore W. Schultz, University of Chicago.

Federal Reserve System seems to me correct—as long as we can neglect the possibility of a big cumulative deficit in our international balance of payments and the possibility of a massive shift of funds abroad in response to higher interest rates or speculative considerations. Until now these have been valid assumptions; they will probably be valid for some time to come. We are not in a liquidity crisis now, and we are not likely to be in one for a while. Our gold stock is adequate to meet all foreign claims that can conceivably be made on us. On the other hand, we cannot continue to run a big deficit in our international balance of payments without ultimately risking an international financial crisis.

I shall not undertake a detailed analysis of the balance of payments of the United States. After a rather cursory review of the things we obviously should and should not do in coping with the deficit, I should like to raise the harder question: What if these easy measures do not work? My observations are prompted partly by my worm's-eye view of international trade in the auto industry, partly by the arithmetic of international monetary reserves, and partly by the belief that, since the future is largely inscrutable, the best economic policy is to be ready for all possible eventualities.

First of all, of course, we should respond to the discipline afforded by our balance-of-payments deficit and do what we should do anyway but would otherwise fail to do because of inertia. These actions include the following:

1. Pressing with all vigor to get the import barriers of other countries reduced and eliminated.
2. Increasing our exports by better information service to business and by better insurance arrangements for export credit risks.
3. Encouraging foreign tourists to visit the United States.
4. Taking all economic steps to raise productivity in the United States. In particular, more encouragement to investment might be given through liberalized depreciation arrangements, and, to the extent feasible, research might be encouraged by some kind of partial tax credit. The social product of research is usually so much greater than the private product that a subsidy for research is clearly in the social interest within the limitations of administrative feasibility.
5. Reviewing our government programs of foreign aid and foreign military expenditures. These programs should not be curtailed just to balance our international account, but they should be reviewed in the light of changed conditions to see whether they are appropriate and effective and worth their cost.

6. Taking a new, hard look at wage-cost inflation. The role of the union as a labor monopoly driving up wages and the most unpleasant role of business as a curb on this monopoly have always seemed to me inappropriate, divisive, and wasteful. In the present circumstances it is clearly in the national interest for labor unions to abandon or greatly moderate their campaigns for wage increases and let competitive pressures that are already squeezing profits produce lower prices for buyers here and abroad. If the downward competitive pressures on prices should be inadequate, they should be reinforced. We cannot reasonably expect such self-sacrifice from labor leaders on their own volition. We can, however, expect from economists a careful appraisal of wage and price phenomena, of the institutions involved, and their proper rules and behavior. We cannot afford a wage-price spiral, and we need your help and leadership in the formation of public opinion and the development of action to prevent the spiral.

Second, we should not try to cure our balance-of-payments difficulties by actions injurious to ourselves or to the rest of the free world. We must not curtail necessary foreign military expenditures or the economic aid needed by underdeveloped countries just to reduce the deficit. Nor should we go isolationist in our investments or protectionist in our trade. Such measures would hurt us and injure our allies. Import restrictions on our part would bring retaliation abroad. We should remember that we need to maintain a large favorable balance in our commodity trade to finance the huge deficit on government account. We are especially vulnerable to import restrictions imposed by other countries, since our favorable balance of commodity trade is achieved almost entirely by the excess of our exports of finished manufactures over our imports of finished manufactures.

Whether we can achieve soon enough a balance of international payments by doing the things we ought to do, by refraining from doing the things we should not do, by the automatic processes of international adjustment, and by the co-operation of other countries, I do not know.

From comparative-cost studies, I know that costs of direct labor in comparable automotive operations are about one-third as high in England and Germany as in the United States and that they are still lower in Italy. In other elements of cost—land, buildings, raw materials, parts supplied by other firms, services purchased, power and miscellaneous overheads—foreign operations usually have either a smaller advantage or a disadvantage. Furthermore, foreign production will obtain additional advantages as the scale of operations in-

creases and as improvements are made in supplier industries. We have been losing position in foreign automotive markets relative to Western Europe. In the United States market the influx of foreign cars was reduced by the introduction of the small American car, but imports have by no means dried up.

In the over-all picture of international trade, both the decline in the United States share of world exports and the persistent, rapid rise in imports of finished manufactures into the United States indicate that our relative competitive position has deteriorated. This is more the result of very rapidly rising productivity and increased supply in the export industries of Western Europe and Japan than of any failure on our part—except that we would be better off if the increases in our wages and prices had been less. Nevertheless, we still have an over-all advantage in manufactures: our exports of finished goods exceed our imports of such goods in the ratio 2 to 1. Where we have an advantage, it is often related to the large scale of operations based on the domestic market, a lead in research, superior management know-how, a relatively high state of development of supplying industries, and sometimes cheaper power and raw materials. As the economies of Western Europe grow and develop and as the advantages of common markets are exploited, we can hardly expect to maintain as large a differential advantage on most of these counts as we now possess. We shall also lose the protection we now enjoy from the institutional lag in marketing arrangements necessary to translate low foreign costs into effective supply. An offset to these shifts is the prospect that wages will probably rise abroad more rapidly than in the United States.

Recognizing the fallibility of economic predictions in general, and of my own in particular, I would not want to forecast whether the economic forces making for equilibrium in our international balance of payments will soon be able to reduce to tolerable proportions the forces making for disequilibrium. All I do say is that we cannot now be sure of the outcome. If a large deficit in the balance of payments stubbornly persists, we shall have three lines of action open to us: (1) sharp reduction in foreign expenditures for economic aid and military purposes; (2) protectionism; (3) adjustment of exchange rates to reflect more closely the equilibrium conditions of balance in international payments. The first two of these would hurt us and our allies, and the third is in conflict with our present mores and status symbols.

I realize that a reduction in the exchange rate of the dollar vis-à-vis certain other currencies is unthinkable in some minds and is often

said to be impossible. These emotional reactions should not disturb us too much. A lot of things have happened during the last thirty years in the physical sciences, and in economics too, that were impossible and that were in violent conflict with the accepted taboos. At the same time, it should be recognized that a change in exchange rates is a serious matter both from the point of view of the sensitive economic mechanisms involved and from the point of view of status symbols and emotional reactions.

All this, however, should be viewed against a bigger backdrop. Consider these facts:

1. The ratio of monetary gold stock to GNP and world trade in the free world is declining. In other words, the size of prospective international deficits is increasing relative to the gold stock that serves as the basis for international payments.

2. The relative amount of short-term funds readily shiftable out of the United States will almost certainly increase (perhaps very rapidly) as money markets abroad develop and as United States holders become more internationally minded.

3. The amount of funds required for international liquidity depends largely on (*a*) the magnitude of cumulative international deficits and (*b*) the magnitude of shifts of short-term funds in response to interest-rate differentials and speculative expectations.

Recommendations have been made by Triffin and others for the development of international exchange reserves to supplement the gold stock as a means of settling international accounts. In its last issue the venerable, but sprightly, *London Economist* presents in fanciful allegory a plan to do away with gold reserves entirely. The success of such plans depends in large part on two factors: keeping cumulative deficits in international accounts within acceptable limits and keeping international flows of short-term funds also within tolerable limits.

The most important economic problems of this decade may well be the control of international deficits, the limitation on massive international shifts of short-term funds, and our domestic wage-price spiral. To these must be added the problems of economic or military war, if either should occur.

To date, the huge liquid balances in the United States have not moved abroad because (1) their managers were not familiar with foreign investment opportunities, (2) it was not considered "proper" to make foreign short-term deposits or investments, (3) the opportunities for liquid investments abroad were limited in size, and (4) there were hazards of adverse political developments abroad. It

seems to me probable that all these deterrents will continue to lessen. If so, the international movements of liquid funds could increase to magnitudes that are big in relation to the means for international payments. Such money movements in huge amounts do not serve very important social ends and can have serious adverse effects both to the stability of exchange rates and to domestic efforts to deal with the business cycle. Huge international movements of liquid funds are not now a major problem and may not be so for many years. Unless the control of such flows becomes necessary, it should not be inaugurated. But if the emergency should arise, we should know what to do and how to do it. Fortunately, this problem, although it does involve a complex financial fabric, does not involve independent foci of power, such as foreign countries or labor unions. The practical difficulties are, therefore, less than those in coping with changes in exchange rates or wage-price inflation.

This brings me to the heart of my discussion—economic adjustments among countries. My thesis is simple: there must be sufficient flexibility to accomplish such adjustments without financial crisis.

In the theory of international trade we learn that the expansive effects of an export surplus and the contractive effects of a deficit will tend to bring about equilibrium. But if domestic monetary and fiscal policies are designed to curb inflation and deflation, they will thwart such adjustments. If we add a taboo on exchange-rate changes, we are left with nothing much but changes in barriers and subsidies to trade and interferences with capital flows to achieve international equilibrium. This makes first-rate economic nonsense.

It is easy to understand why the prevailing opinion in financial circles and why lay opinion are so violently in favor of maintaining exchange rates at any cost. A fixed exchange rate is a matter of very great convenience in international financial arrangements. A strong currency is a sign of economic progress and sound domestic fiscal policy. Devaluation is almost always—but not always—a sign of failure in fiscal policy. Moreover, a fixed exchange rate exerts a strong disciplinary effect when the balance of payments becomes adverse. Many thoughtful people would oppose devaluation because they feel that we need this discipline in our economy; they hope it will create pressures to restrain the drive for excessive wage increases. There is much virtue and certainly great convenience in fixed exchange rates. It is easy to see how the dollar becomes a symbol of our strength and leadership in the free world—to be defended as if it were our flag.

It is more difficult to see why so many economists take the same

position so unequivocally. Most economists favor price flexibility but are committed to rigid price-fixing when it comes to exchange rates. This position, I suspect, is usually a result of follow-the-leader policy or of inability to see how changes in exchange rates can be achieved in the complexities of real life.

Our present deficit on international account does not fit the conventional book. Our problem arises mainly from the phenomenal recovery of Western Europe and Japan and from our determination to provide leadership and assistance to the free world. To a lesser extent it is the result of the Korean war price bulge and of our failure to control wage-price inflation. We are not confronted by a liquidity crisis now, nor are we in any immediate danger of being confronted by such a crisis. I submit, however, that we do not know how to avoid such a crisis, should it threaten, by means that are compatible with our objectives as leaders of the free world. This poses a proper challenge to economists. This matter is important not only in the immediate context. It is crucial also in the larger context of a gold stock rising less rapidly than the volume of international trade. We simply must find ways to keep cumulative international deficits within the limits of the means to meet those deficits. Otherwise, sooner or later, we shall face a crisis in international liquidity.

There is still another aspect to the problem of international adjustments. Even if the automatic processes of adjustment ultimately force inflation in export surplus countries and deflation in deficit countries, this is an unsatisfactory solution. Inflation and deflation are inequitable and costly, as you well know. Moreover, if the process of adjustment is slow, large uneconomic investments will have been made in the wrong industries and in the wrong countries, with subsequent heavy waste of capital and dislocation of labor.

I do not have a pat answer to the question I have put to you: how to make certain we have adequate means for achieving economic adjustments among countries. It would seem, however, that these means should include adjustments in exchange rates when fundamental changes in cost and supply conditions require them for equilibrium. I know this is a very complex and sensitive matter, but that is all the more reason why economists should study it.

COUNTERSPECULATION, AUCTIONS, AND COMPETITIVE SEALED TENDERS

WILLIAM VICKREY
Columbia University

IN HIS *Economics of Control*, A. P. Lerner threw out an interesting suggestion that where markets are imperfectly competitive, a state agency, through "counterspeculation," might be able to create the conditions whereby the marginal conditions for efficient resource allocation could be maintained. Unfortunately, it was not made clear just how this counterspeculation was to be carried out, and to many this term denotes just one more of the empty boxes that rattle around in the economist's cupboard of ideas. And there appears to have been, in the years since *Economics of Control* first appeared, no attempt to examine critically just what this intriguingly labeled box might in fact contain.

In Section I this counterspeculation box will be further examined; it turns out that most of the devices that most immediately suggest themselves under this heading prove to be inordinately expensive in terms of their demands on the fiscal resources of the state relative to the net benefits to be realized, at least where the commodity in question is finely divisible. The other extreme case, where there is only a single indivisible item to be allocated, is examined in Section II; in this case the possibilities for reaching an optimum solution in a market with a limited number of participants become considerably brighter: the common or progressive type of auction can be shown to provide better chances for optimal allocation than the regressive or "Dutch" auction. The implications of these findings for the more significant cases where contracts are let or sales made by competitive bids or tenders are examined in Section III; the analysis reveals a likelihood that certain modifications of current practices in these areas, more specifically by making the award price equal to the second highest (or lowest) bid price rather than the highest bid price, might prove generally beneficial in improving the allocation of resources without being as prejudicial to the interests of sellers (or buyers) as might at first seem to be the case. Section IV deals with the somewhat more complicated and general class of cases where there are several identical items to be auctioned, and Section V deals with the application of the concepts derived in Section IV to the sale

of a number of identical units under sealed-bid conditions; it turns out that here, too, significant gains can be expected from certain departures from currently prevalent practices.

I. The Exclusive Public Marketing Agency

To simplify the problem, let us consider the simple case of a standardized commodity in which the only imperfection in the market consists of the fact that either buyers or sellers or both are too few in number to ignore the repercussions of their actions on the market price but are either too numerous, too naïve, or too isolated from each other to engage in any overtly or tacitly concerted action. We will also assume that the individual marginal-cost and marginal-value curves of the sellers and buyers are well defined and have moderate positive and negative slopes, respectively. The normal result in such a case is that less than the optimal quantity will be produced and sold, and this will be true even though a "countervailing power" type of balance between buyers and sellers maintains the price at the same level as would result under strictly competitive conditions.

Let us now assume that there is established an exclusive public marketing agency to which all sales of this commodity must be made and from which all supplies of the commodity must be bought. A simple solution to the problem would be available if the public marketing agency could determine with confidence what the equilibrium competitive price would be and could then establish this price for its purchases and sales in such a way that neither buyers nor sellers could expect to have any influence over it. This price would then be a fixed datum to buyers and sellers, and competitive behavior could be expected. This is, indeed, the type of solution that comes most readily to mind on first meeting up with the concept of "counter-speculation."

The trouble with this as a workable solution is that much of the information that the marketing agency would need in determining the competitive equilibrium price would have to come from reports and actions of buyers and sellers, who would have an incentive to understate prospective demands and supplies or to curtail their actual sales and purchases in the hope of inducing the marketing agency to change the price in their favor. In a static situation, a marketing agency might conceivably manage not to be misled by such misinformation and to withstand the blackmail of curtailments in purchases or sales. But in a dynamic situation, where the equilibrium price is continually changing, it would be much more difficult to ascertain the

equilibrium price, keep the price at this level, and simultaneously persuade buyers and sellers that future changes in the published price will not be influenced by any tactical deviations on their part. Moreover, if the marketing agency should, under the guise of "stabilization" or otherwise, attempt to keep the price fixed over any extended period of time, even slight disequilibria at this price are likely to induce speculation against the pegged price, which, even if it does not succeed in inducing a change in the pegged price, will, unlike speculation over a market-determined price, necessarily of itself involve some misallocation of resources.

What the marketing agency needs, in order to determine the optimum pattern of transactions in its commodity, is an unbiased report of the marginal-cost (= competitive supply) curves of the sellers and of the marginal-value (= competitive demand) curves of the purchasers, or at least of the portions of these curves covering a range of prices that will be sure to contain the equilibrium price. The problem is then for the marketing agency to behave in such a way as to motivate the buyers and sellers to furnish such unbiased reports. One method, though an expensive one, is to arrange to purchase the commodity from suppliers and to sell it to purchasers on terms that are dependent on the reported supply and demand curves in such a way that the suppliers and purchasers will maximize their profits, individually at least, by reporting correctly, so that any misrepresentation will subject them to risk of loss (or at least offer no prospect of gain).

For example, the marketing agency might ask for the reporting of the individual demand and supply curves on the understanding that the subsequent transactions are to be determined as follows: The agency would first aggregate the reported supply and demand curves to determine the equilibrium marginal value, and apply this value to the individual demand and supply curves to determine the amounts to be supplied and purchased by the various individual buyers and sellers. The amount to be paid seller S_i would, however, somewhat exceed the amount calculated by applying this marginal value to his amount supplied; in effect for the rth unit supplied, S_i would be paid an amount equal to the equilibrium price that would have resulted if S_i had restricted his supply to r units, all other purchasers and sellers behaving competitively. In terms of Figure 1, D_n is the aggregate demand curve, S_n is the total supply curve, and the intersection at E indicates the equilibrium marginal value; S_{n-i} is the aggregate supply curve of the sellers other than S_i, and its intersection with the horizontal line PE at G indicates the amount GE to be supplied by i;

the amount to be paid to i for this supply is indicated by the area $EFGMQ$, between the total demand curve D_n, the supply curve of the competitors S_{n-i}, and the quantity axis. Payments to other suppliers would be determined similarly, each supplier being considered in turn as the "last" supplier, giving rise to a total payment to suppliers that can be represented by the area $OQEFGF'G'F''G'' \ldots PO$.

Given this method of determining payment, no individual supplier would have any direct incentive to misrepresent his supply schedule.

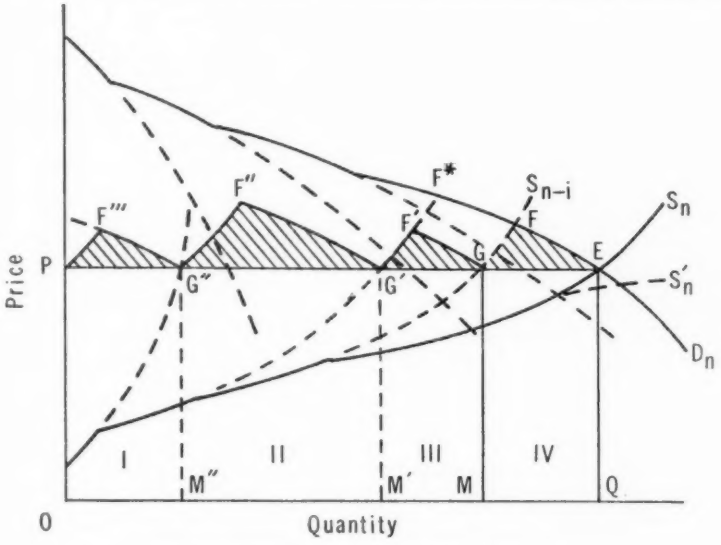

FIG. 1.—Counterspeculative payments to suppliers

If he misrepresents his true supply curve in a way that makes the total supply curve go through the correct point E, this will cause no change in the amount he is called upon to supply or to his own receipts, though it is likely to affect the receipts of (but not the demands on) other suppliers. On the other hand, if a misrepresentation is made that causes the aggregate supply curve to miss the point E—say, by falling below it as in the curve S'_n—this will entail his being called upon to supply additional units for which the marginal revenue received by this supplier will be less than the marginal cost to him of producing this increment of output, so that, on balance, he will be worse off. Conversely, for errors that would push the supply curve above the correct equilibrium point E, the amount that will be

ordered from him will be reduced, but the amount paid for his supply will be cut by more than the marginal-cost savings to him, and again he would be worse off, on balance.

An exactly symmetrical method could simultaneously be adopted for dealing with the demand side of the market: purchasers would receive the indicated equilibrium amounts of the commodity but would pay a price represented by the area *EKLNQ* in Figure 2, determined by the aggregate supply curve S_n and the demand curve

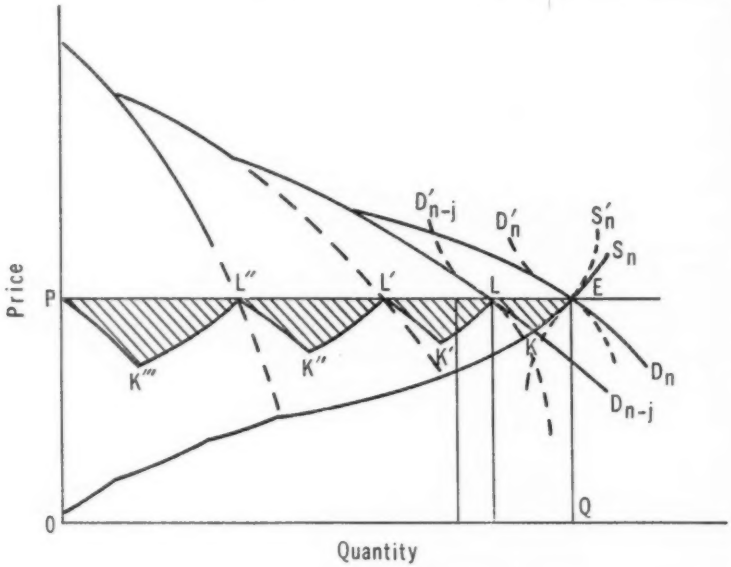

FIG. 2.—Counterspeculative charges to purchasers

D_{n-j} of the purchasers other than j. Again the individual purchasers would have no direct incentive for misrepresenting their demand schedule and would have a positive incentive for insuring that at the equilibrium value their demand would be correctly reported.

Since, in advance of filing their supply or demand schedules, suppliers and purchasers will in general be somewhat uncertain of the exact level of the eventual equilibrium price, incentives to report correctly at the equilibrium price actually cover a considerable range about this equilibrium price. On the other hand, if traders have a fairly confidently held expectation that the equilibrium price will fall within a certain narrow range, there may be an indirect community of

interest in shading the reported demand and supply curves outside this range in the direction of greater inelasticity, as indicated by the dotted curves S'_{n-i}, S'_n, D'_{n-j}, D'_n. Such shading for prices above the equilibrium value would result in higher payments to other suppliers, and below the equilibrium value would result in lower charges to other purchasers; no supplier or purchaser would benefit directly from his own misrepresentation, however, and optimum allocation would still be preserved.

The basic drawback to this scheme is, of course, that the marketing agency will be required to make payments to suppliers in an amount that exceeds, in the aggregate, the receipts from purchasers by the sum of the shaded areas in the two diagrams. The average price paid to suppliers will exceed the competitive equilibrium price OP, and the average price received from purchasers will be less than OP. This solution would indeed permit optimum allocation of resources to be achieved if there were a source of public funds that was without adverse influence on resource allocation in other directions. Even if such an ideal revenue source existed, such a scheme would still be open to criticism as discriminating in favor of larger units, since they would be obtaining a higher average price as producers and a lower average price as purchasers than would their smaller competitors. In Figure 1, for example, supplier *II* gets the amount $M''G''F''G'M'$ for his supply of $M''M'$, whereas supplier *III* gets $M'G'F'GM$ for a supply of $M'M$. Moreover, there remains under the scheme a positive incentive for firms to merge into larger units for the sake of obtaining more favorable treatment. Thus in Figure 1, if suppliers *III* and *IV* were to merge, they would automatically become entitled to an additional payment indicated by the quadrilateral area $F'F^*FG$. Considering the fact that public funds are obtainable only at a significant cost in terms of overhead expenses of collection as well as of misallocation of resources at other points, it is highly doubtful whether the carrying-out of such a scheme in full could ever be justified.

It is tempting to try to modify this scheme in various ways that would reduce or eliminate this cost of operation while still preserving the tendency to optimum allocation of resources. However, it seems that all modifications that do diminish the cost of the scheme either imply the use of some external information as to the true equilibrium price or reintroduce a direct incentive for misrepresentation of the marginal-cost or marginal-value curves. To be sure, in some cases the impairment of optimum allocation would be small relative to the reduction in cost, but, unfortunately, the analysis of such variations

is extremely difficult; considering the slight likelihood that any such scheme would be put into practice, further analysis will here be concentrated on situations more closely realized in practice.

II. Simple Auctions

Where the resource to be allocated comes in a small number of discrete indivisible units rather than consisting of a fungible commodity, the chances of insuring an optimum allocation of resources are considerably improved, since here there will be in general a certain range of prices, all leading to the same optimal allocation of the resources being traded, though, of course, to somewhat different distributions of income among the parties to the trade. The simplest case is one in which there is a *single unique indivisible object* to be sold to one of a number of potential purchasers. The purchaser and the price may be determined by any of a number of auctioning or bidding procedures, and the results will in general be significantly different according to the procedure adopted.

The simplest procedure to analyze is that of the ordinary or progressive auction, in which bids are freely made and announced until no purchaser wishes to make any further higher bid. The normal result (among rational bidders!) is that the bidding will stop at a level approximately equal to the second highest value among the values that the purchasers place on the item, since at that point there will be only one interested bidder left; the object will then be purchased at that price by the bidder to whom it has the highest value. (For simplicity, we shall assume that price can vary continuously and that there is no minimum increment between bids.) This result is obviously Pareto-optimal.

It is interesting to contrast this with the so-called "Dutch auction," in which the auctioneer announces prices in descending sequence, the first and only bid being the one that concludes the transaction. A mechanized form of this procedure is actually used in wholesale flower marketing in the Netherlands and has proved very economical of time and effort. In the analysis of this form of auction, however, we find that we are faced with what is essentially a "game" in the technical sense. Each bidder, in attempting to determine at what point he should be prepared to make a bid so as to obtain the greatest expectation of gain, will need to take into account whatever information he has concerning the probable bids that might be made by others, and the bids made by others will in turn depend on their expectations concerning the behavior of the first bidder. To put in a bid as soon as the price has come down to the full value of the object

to the bidder maximizes the probability of obtaining the object, but guarantees that the gain from securing it will be zero; as the announced price is progressively lowered, the possibility of a gain emerges, but as the gain thus sought increases with the lowering of the point at which a bid is to be made, the probability of securing this gain diminishes. Each bidder must thus attempt to balance these two factors in terms of whatever knowledge he has concerning the probable bids of the others.

The Dutch auction game.—To make this problem tractable, we shall suppose that the knowledge that each bidder has about the motives and probable behavior of the others can be derived from a set of probability distributions from which the value of the object to each of the bidders is conceived to be drawn. For simplicity, we shall assume that all bidders have the same conception of the probability distribution from which any given player is deemed to derive the value he places on the object; the given player, of course, knows the actual value he places on the object but is assumed also to know the distribution from which others consider his value to be drawn. These distributions need not be the same for all bidders, i.e., some may be considered to be more likely to place a high value on the object than others.

The situation can be considered analogous to a formal parlor game in which each player actually does draw a value at random from his own individual probability distribution of values (e.g., by drawing a card at random from a deck having a composition known to all the players), and then, knowing that value, but without directly revealing it to others, and knowing the probability distributions from which the other players are respectively drawing their values, but not knowing any of the values actually drawn, each player makes a bid without knowing the bids made by any of the other players; after all bids have been made, they are compared, and the player with the highest bid wins an amount equal to the excess of his value over his bid, the remaining players winning nothing. In the case of tie bids we can assume the tie to be broken by a random drawing giving each tied player the same probability of winning. Given a specific set of underlying probability distributions, the problem is then to determine how each bidder should determine his bid in order to maximize his gains. Unfortunately, the general theory of games gives an embarrassingly rich set of answers.

However, if we rule out such elements as collusion among bidders, side payments, communication, or signaling, the solution most appropriate to the situation being studied seems to be the non-co-op-

erative equilibrium point analyzed by Nash.[1] This equilibrium point is defined in this case as a set of functions $x_i(v_i)$, one such function for each player, relating the bid x_i to be made to the value v_i that he draws from his list, such that if any one player is able to determine (e.g., from observation over a sufficiently large number of plays of the game, or repetitions of analogous situations, or a study of an analysis such as this one!) just what functions are being used by the other players, or at least the resulting probability distribution of bids for each of the other players, which is all that concerns him directly, and considers these distributions to be fixed, at least for the time being, he can nevertheless find no way of changing his own function $x_i(v_i)$ in such a way as to increase his expected gain.

Unfortunately, while it can be shown that at least one such equilibrium point exists in each case and that we are not hunting a will-o'-the-wisp, the analytical determination of such equilibrium points involves extremely difficult mathematics in all but the simplest cases. However, some instructive hints can be derived from the examination of the more tractable cases.

The homogeneous rectangular case.—One simple case is that in which all of the individual values are drawn from the same rectangular distribution, which, by suitable choice of scale and origin, we can make the interval (0, 1). Also we shall assume a linear utility function over the range of gains involved, so that we can speak in terms of maximizing expected money gains rather than having to allow for any "risk aversion" or "risk preference" that might be represented by a non-linear utility function. In this case the unique equilibrium strategy is for each player to determine his bid according to the relation

$$b_i = \frac{N-1}{N}\, v_i,$$

where N is the number of bidders. It is fairly easy to see that if all players behave in this way, no one player can gain by deviating from this pattern. It will be shown later, as part of the solution of a more general case, that this equilibrium point is indeed unique. If players conform to this norm, the highest bid will always be made by the player drawing the highest value for the object, so that the result will be Pareto-optimal (the seller being included, of course, among those to be preserved against loss in any proposed reallocation that would contradict this optimality).

1. See, e.g., Luce and Raiffa, *Games and Decisions* (New York: John Wiley & Sons, 1957), pp. 170–73.

It can also be shown (see Appendix I), that the two methods of auctioning produce, in this case, the same average expected price and hence the same average expected gains to the buyers and sellers, respectively. However, the variance of the price is greater under the common or progressive type of auction than with the Dutch auction by a factor of $2N/(N-1)$ while the variance of the gain to the buyer is greater by a factor of N^2. If we introduce an element of risk aversion for purposes of evaluating these results (but not for deriving the results!), the Dutch auction thus proves slightly superior by reason of the smaller dispersion of the gains to each of the parties.

Non-homogeneous cases.—If the assumption of homogeneity among the bidders be abandoned, the mathematics of a complete treatment become intractable. It is fairly easy to show, however, that while the progressive auction still produces the Pareto-optimal allocation of the object, the Dutch auction will not, in general. Consider, for example, the case where there are two bidders, one drawing from a distribution rectangular between 0 and 1, the other drawing from a rectangular distribution ranging from a to b (see Appendix II). If $a \neq 0$, the essential asymmetry of the positions of the two players prevents their reacting similarly to similar value drawings, and the object may go to the bidder for whom it has the lower value.

An attempt at a complete solution for the above case runs into difficulties. In order to have at least one complete analysis of a non-homogeneous case, we can further simplify by supposing that the value to be drawn by the second bidder is fixed at a, rather than varying over a range from a to b. In this case we must allow the second bidder to use a mixed or randomized strategy, so as to distribute his bids over a range, even though he has only a fixed value, since if he were always to bid the same amount c, then bidder 1 would tend to just outbid him whenever v_1 is greater than c, giving bidder 2 in turn an incentive to change his fixed bid, and no equilibrium would be possible. On the other hand, for a bidder such as 1, whose values are drawn from a continuous distribution of positive range, there is no need for any randomization, and the bids can be determined as a single-valued function of the value drawn.

The analysis of this case is taken up in detail in Appendix III. The equilibrium strategies are illustrated in Figure 3, which gives the results for $a = 0.8$. The bidder with the fixed value a will have to distribute his bids over the range from $a/2$ to $a - \frac{1}{4}a^2$ according

to the cumulative frequency distribution $y_2(x)$, y_2 being the probability of a bid of less than x by player 2, where

$$y_2(x) = \frac{a(2-a)}{2(2x-a)}\, e^{[2/(2-a)-a/(2x-a)]}.$$

The bidder with the variable value makes a bid x depending on the value v_1 that he draws given by

$$x = a\left(1 - \frac{a}{4v}\right):$$

the curve $y_1(x)$ in Figure 3 shows the cumulative probability of the various bids x, and the value corresponding to any given bid is obtained by looking for the point on the line $y_1 = v$ where the cumulative probability of the value corresponds to the cumulative probability of the given bid. If a value is drawn of less than $\frac{1}{2}a$, there is no possibility of gain for bidder 1, since bidder 2 always bids at least this amount; in this event bidder 1 may make bids falling anywhere within the shaded area without upsetting the equilibrium.

The difference between the mean results for the Dutch auction and the common progressive auction procedure in situations of this

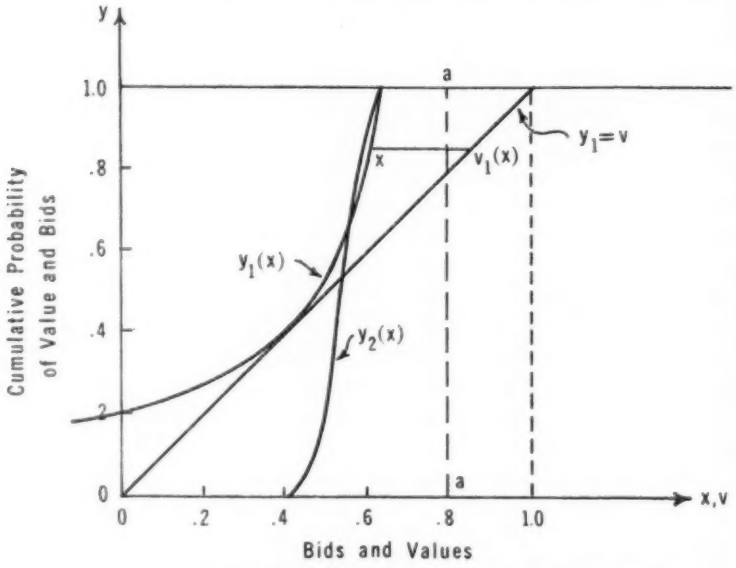

FIG. 3.—Equilibrium strategies for the asymmetrical case with $a = 0.8$

type varies according to where the second bidder's fixed value a lies in relation to the range of values over which the randomly assigned value of the first bidder may vary. In the common auction, for values of v_1 greater than a, bidder 1 gets the article at a price of a, while for a v_1 less than a, bidder 2 gets the article at a price of v_1. The average price is thus $a - \frac{1}{2}a^2$. With the Dutch auction the average realized price turns out to be greater than this for a greater than about 0.43, and less for values below about 0.43. Figure 4 gives a general picture of how the average expected values for the price, the net gain to the two bidders, and the total gain differ for the two methods at various values of a.

To extrapolate rather boldly from these instances, one can perhaps hazard the guess that where the bidders are fairly homogeneous and sophisticated, the Dutch auction may produce results that are

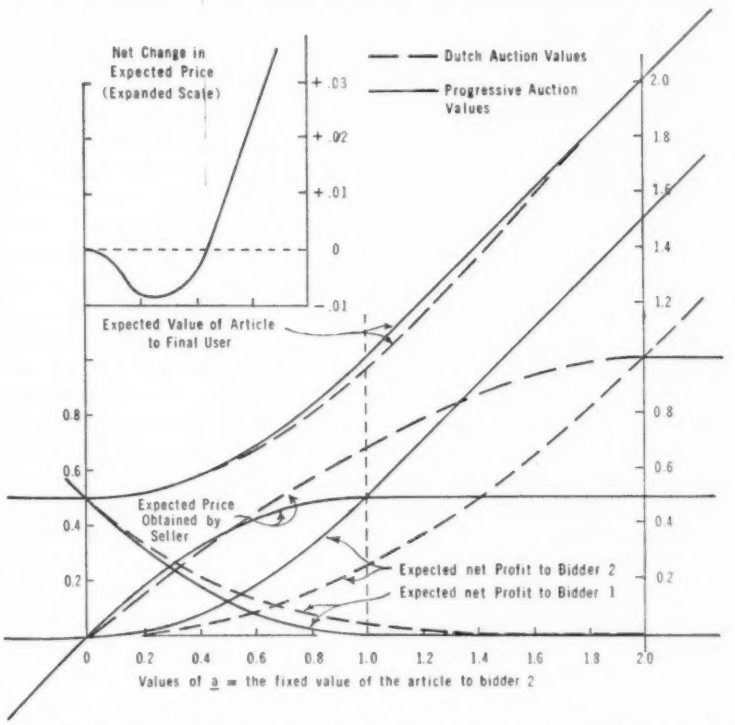

FIG. 4.—Comparison of average expected results of the Dutch auction with those of the progressive auction in an asymmetrical case.

reasonably close to the Pareto-optimal, but where there is much variation in the state of information or the generally expected intensity of desire of the various players for the object, or where the bidders are insufficiently sophisticated to discern the equilibrium-point strategy or for some other reason fail to use this strategy, then the Dutch auction is likely to prove relatively inefficient from the point of view of securing an optimum allocation. In the symmetrical case, the Dutch auction produces the same average price and the same average gain, but with a smaller dispersion of the gains to the bidders and of the realized price.

III. Sale or Purchase of a Single Lot by Sealed Bids

A considerably greater degree of importance attaches, not to auctions as such, but to cases in which a contract is to be let on the basis of competitive sealed tenders. This may be a construction contract or the sale of a parcel of property or the underwriting of a security issue. Actually, the usual practice of calling for the tender of bids on the understanding that highest or lowest bid, as the case may be, will be accepted and executed in accordance with its own terms is isomorphic with the Dutch auction just discussed. The motivations, strategies, and results of such a procedure can be analyzed in exactly the same way as was done above with the Dutch auction.

Since it has been shown that the Dutch auction has certain characteristics in some circumstances that may be considered disadvantageous as compared with the more certainly Pareto-optimal results of the progressive auction, it is of interest to inquire whether there is not some sealed-bid procedure that would be logically isomorphic to the progressive auction. It is easily shown that the required procedure is to ask for bids on the understanding that the award will be made to the highest bidder, but on the basis of the price set by the second highest bidder. If this procedure is carried out, then the optimal strategy for each bidder (assuming, as is indeed necessary in the analysis of the progressive auction itself, the absence of collusion among bidders) will obviously be to make his bid equal to the full value of the article or contract to himself, i.e., to the highest amount he could afford to pay without incurring a net loss or to that price at which he would be on the margin of indifference as to whether he obtains the article or not. Bidding less than this full value could then only diminish his chances of winning at what would have been a profitable, or at least not unprofitable, price and could not, collusion aside, affect the price he would actually pay if he were the successful bidder. Bidding more than the full value, on the

other hand, would increase his chances of winning, but only under circumstances that would involve him in an unprofitable transaction, the price to be paid being greater than his value.

Judging from the preceding analysis of the Dutch auction paradigm, there would in many, if not most, cases be a considerable advantage to all concerned in shifting to this "second-price" method of handling sealed bids. In cases in which, by reason of asymmetry among the bidders, errors in evaluation, or mistakes in strategy, the result with the "top-price" method is non-optimal, a change to the "second-price" method will yield an increase in the aggregate profits to be shared among seller and buyers. The fact that in the symmetrical case when the correct equilibrium strategy is employed there is no change in the average realized price would tend to indicate that when there is a gain through a change from a non-optimal to an optimal one, the gain would, on the average, be shared between buyers and sellers. On the other hand, the study of the asymmetrical case indicates that there are some extremes where the Pareto-optimal progressive auction or second-price methods result in a lower average expected price to the seller than the non-optimal Dutch auction or top-price method, and other extremes where they result in a lower average expected gain to the buyers. On the whole, however, in a reasonably active market it seems likely that it would be quite rare for the asymmetry among the buyers to be so substantial and so apparent that one could say a priori that one party or the other would tend to lose from the shift. In the large majority of cases one could be fairly sure of at least some over-all gain from the shift (one can be certain of no over-all loss), with a fairly strong expectation that this over-all gain would be shared by both buyers and sellers in the long run.

In addition to the gain from the improved allocation of resources, there is another possible gain that is not covered in the above analysis, which abstracts from the costs involved in the negotiations. In the top-price method of negotiation, as in the Dutch auction, bidders, in order to maximize their expectation of profit, must concern themselves not only with their own appraisal of the article but also with their estimate of the value that others will place on it and their expectation of the bidding strategy that others will follow. This involves a considerable amount of appraisal of the market situation as a whole, in addition to an appraisal of what the article is worth to the particular bidder himself. Where the bidders are wholesalers who are purchasing the article or lot for retailing in a retail market shared by all the bidders, there may be no great difference between

appraising the article for one's self and estimating what others will value the article at. But especially where the various bidders want the article for different purposes or where the article will be retailed in different areas or by different methods by different bidders, the general appraisal of the market does involve substantial additional information-gathering activity. Moreover, failure to perform this general appraisal with reasonable uniformity is likely to increase the chances that the optimum allocation will not be achieved. It is one of the salient advantages of the second-price method that it makes any such general market appraisal entirely superfluous, whether considered from the standpoint of individual gain or from that of the over-all allocation of resources. Each bidder can confine his efforts and attention to an appraisal of the value the article would have in his own hands, at a considerable saving in mental strain and possibly in out-of-pocket expense. In the first instance this saving might redound largely to the benefit of the bidders; as a corollary, however, more bidders might be induced to put in bids, resulting in a better allocation of resources and a higher price for the seller.

The second-price method may not be automatically self-policing to quite the same extent as the top-price method, but there should be no real difficulty. It would be necessary to show the second-best bid to the successful top bidder so that he would be able to assure himself that the price he is being asked to pay is based upon a bona fide bid. To prevent the use of a "shill" to jack the price up by putting in a late bid just under the top bid, it would probably be desirable to have all bids delivered to and certified by a trustworthy holder, who would then deliver all bids simultaneously to the seller. Under these circumstances, the seller would have no incentive to do other than sell to the top bidder, showing him as his price the second-best bid. Where the seller is a governmental body or a large corporation, so that the agent handling the sale might not be adequately motivated to serve the interests of his principal, it would be desirable to publish the final terms of sale; if this is done, any bidder whose bid has been improperly overlooked would at least be on notice of this, though, unless he was actually the top bidder, he would have only an indirect interest in lodging a protest. If he were uncertain as to the amount of the bid put in by the successful bidder, his protest would be motivated by a hope of being top bidder, so that there would be some advantage at this point of not announcing the top bid, but only the effective price. Even this would not prevent the top bidder and the agent from showing the top bid to the second bidder, together with a quieting douceur, so as to be able to set the price at the third

highest bid. If corruption of this order cannot be prevented, then this would constitute a serious disadvantage of the second-price method.

If selling at the second bid price is better than selling at the top price, one is tempted to ask, as a matter of completeness, would not selling at the third bid price be even better? The answer is no, as might be expected from the fact that the second-price method is Pareto-optimal, and there is no further gain to be had from improvement in the allocation of resources. In the game paradigm, the equilibrium strategy for the third-bid-price game will be to make a bid somewhat higher than the value drawn, since the danger of a Pyrrhic victory in which the price to be paid exceeds the value is offset by the increased probability of gains in cases where the second bid exceeds this value but the third bid falls below it. The optimum strategy depends on the strategy of others, and the need for more information and the possibility of non-optimal allocation are reintroduced.

On the other hand the Dutch auction scheme is capable of being modified with advantage to a second-bid price basis, making it logically equivalent to the second-price sealed-bid procedure suggested above on page 20. As presently practiced, speed is achieved by having a motor-driven pointer or register started downward from a prohibitively high price by the auctioneer; each bidder may at any time press a button which will, if no other button has been pushed before, stop the register, thus indicating the price, flash a signal indicating the identity of the successful bidder, and disconnect all other buttons, preventing any further signals from being activated. There would be no particular difficulty in modifying the apparatus so that the first button pushed would merely preselect the signal to be flashed, but there would be no overt indication until the second button is pushed, whereupon the register would stop, indicating the price, and the signal would flash, indicating the purchaser. This would involve some increased difficulty in learning to control the timing of the button-pushing so as to indicate a desired bid, particularly if, in order to save time, the price register or indicator is made to move fairly rapidly. An even more rapid procedure could be developed, with relatively little increase in the apparatus required, if each bidder were provided with a set of dials or switches which could be set to any desired bid, with the electronic or relay apparatus arranged to search out the two top bids and indicate the person making the top bid and the amount of the second bid.

IV. Multiple Auctions

Another interesting case occurs where there is more than one identical object to be sold, but each bidder has use for at most one. Here there are two variations on the progressive type of auction: simultaneous and successive. In simultaneous auctioning the m items can be put up simultaneously, and each bidder permitted to raise his bid even when this does not make his bid the highest. When a point is reached such that no bidder wishes to raise his bid further, the items are awarded to the m highest bidders. If we assume the bid increment to be negligibly small, the results will be that the bidding will stop at a price equal to the $(m + 1)$st highest value among those placed on the articles by the bidders, this being the bid of each of the bidders placing a higher value on the item—assuming that the $(m + 1)$st bidder doesn't bother to make a profitless bid. Bidders with the top m values thus secure the article at a uniform price equal to the $(m + 1)$st value; the result is again Pareto-optimal.

This method is applicable, however, only if the items are actually identical so that there is no problem of deciding who gets first choice and no variation in the value imputed to the various items by a given bidder. In part because of the possibility that there may be minor variations in quality among the items, the more frequent procedure in such cases is for the items to be auctioned off successively, one at a time. With this procedure, an element of speculation or strategy is present during the auctioning of all but the last item, as each bidder must consider whether he should push the bidding up higher on the current item or sign off in the hope that a subsequent item will become available at a lower price. This situation has characteristics similar to that of the Dutch auction.

Consider the game paradigm of the case where there are two items to be auctioned off among N similar bidders, their similarity being represented by each bidder drawing the respective value that any of the items is to have for him, if he secures one, from a distribution that is common to all the bidders. To exclude the complicating element of information that might be inferred from the way the bidding in the auction of the first item develops, it will be assumed that the first auction at least is by sealed bids, price being determined by the second highest bid. The problem is for each bidder i to determine the bid b_i to be made for this first item, as a function of the value v_i that he has drawn. By virtue of the symmetry among bidders, we can assume that this function $b_i(v_i) = x(v)$ is the same for all bidders.

Suppose this function $x(v)$ to have been established and that a bidder, having drawn a value v, is contemplating a deviation from this normal rule by raising his bid from $x(v)$ to $x(v) + dx$. Such a change will affect the outcome only in those cases where this causes the bidder in question to obtain the first item, whereas he would have failed to do so in the absence of this deviation; that is, the deviation will be consequential only where the highest of the other bids lies between $x(v)$ and $x(v) + dx$. The consequence, if any, will be that the increased bid secures the first item at a price between $x(v)$ and $x(v) + dx$, instead of the bidder being almost certain to be the top bidder for the second item auctioned, given that the values v_i will rank in the same order as the normal bids $x(v_i)$ made for the first item, and disregarding the vanishingly small relative probability that two other bids would fall in the range from $x(v)$ to $x(v)$ to dx.

The price that would have been paid for the second item is the highest of the $N - 2$ values drawn at random from the common distribution by the $N - 2$ unsuccessful bidders in the second auction; for the case of a rectangular distribution over the interval from 0 to 1, this price has an expected value of $[(N - 2)/(N - 1)]v$ since, if the increment of bid dx being considered causes any change in the outcome at all, none of these unsuccessful bidders can have drawn a value greater than the value v drawn by the deliberating bidder. The bid for the first item must then be at least equal to $[(N - 2)/(N - 1)]v$, or there would be an expected gain from increasing the bid; a similar argument shows that it cannot be greater without creating an incentive to lower the bid.

The equilibrium situation then is that each bidder puts in a bid of

$$b_i = \frac{N-2}{N-1}\, v_i$$

for the first article, or alternatively, in the more usual form of bidding, competes in the bidding up to this level but no further. The second highest value among the N values drawn will average $(N - 1)/(N + 1)$, and the second highest bid, which determines the price of the first item, will then have an average expectation of $(N - 2)/(N + 1)$. This is also the average expected price for the second item, which is, indeed, the average expected price when the two items are auctioned simultaneously as described above. But, as with the Dutch auction of a single item, there is in the successive auction a slightly different dispersion of the prices. There is, also, a tendency in non-symmetrical cases for the results to be other than

Pareto-optimal. Unfortunately, even the simplest of the non-symmetrical successive auction cases would involve at least three bidders, and the complications of a complete analysis appear too formidable to go into here.

V. Multiple Sales by Sealed Bids

A type of transaction that is of considerable practical interest is that of the sale of a number of identical items, say an issue of bonds, on the basis of sealed bids. The more usual practice is to accept a certain number of bids starting from those offering the highest price, the effective price for each transaction being the price in the individual bid. An alternative method is to set the effective price at the level of the last bid accepted and permit all successful bidders to benefit from this same uniform price. The usual rationale for this procedure is one of avoiding discrimination in the final price among the various buyers, even though the differential would be based on the bid submitted. The present analysis indicates that this method has the more material advantage of reducing the probability that a bidder's own bid will affect the price he receives, thus inducing bids closer to the full value to the bidder, improving the chances of obtaining or approaching the optimum allocation of resources, and reducing effort and expense devoted to socially superfluous investigation of the general market situation.

To obtain these advantages in full, however, it is necessary to go one step further than is usually done and make the uniform price to be charged the successful bidders equal to the first bid rejected rather than the last bid accepted; only in this way is it possible to insure that each bidder will be motivated to put in a bid at the full value of the article to himself, thus assuring an optimum allocation of resources, at least for the case where the number of items to be offered is absolutely fixed, and avoiding any incentive for wasteful individual expenditure on general market research. Again it appears that, in spite of what appears to be at first glance the establishment of a needlessly low price, this "first-rejected-bid" pricing can be expected in the long run to yield just as high an average price as the "greedier" method.

It is important to realize, however, that this result applies only to cases where each bidder is interested in at most a single unit, and there is no collusion among the bidders. As soon as we consider the more general case where an individual bidder may be interested in securing two or more of the units, while the number of bidders is still too few to produce a fully competitive market, the possibility

of so arranging things that the Pareto-optimal result is achieved without impairing the expectations of the seller disappears. It is not possible to consider a buyer wanting up to two units as merely an aggregation of two single-unit buyers: combining the two buyers into one introduces a built-in collusion and community of interest, and the bid offered for the second unit will be influenced by the possible effect of this bid on the price to be paid for the first, even under the first-rejected-bid method. Where individual bidders may buy more than one indivisible unit, we are, in effect, back in a variant of the exclusive marketing-agency case, where the interests of the marketing agency are merged with those of a single monopolistic seller. In such a case, while the marketing agency need have no concern for the amounts above the competitive equilibrium price which the Pareto-optimal marketing scheme of pages 10–12 would require to be paid to itself as seller, it would be concerned for the amounts by which the revenues from the purchasers would fall short of the competitive equilibrium price, or at least the amount by which these receipts fall short of the possibly somewhat smaller revenues which could in fact be secured on the basis of any other method of approximating the efficient allocation under imperfectly competitive conditions. Nor could optimal results be obtained merely by restricting all bids to an offer to take up to a given quantity at any price below a specified price, the final terms being a price equal to the price bid by the first unsuccessful bidder, each bidder bidding more than this being allotted the amount which he specified. Under such a scheme, for any quantity that a bidder might decide to specify, it would be advantageous for him to specify as his bid price the full *average* value of this quantity to him, since he would prefer this quantity to be allotted at any price lower than this bid rather than be excluded altogether, and a change in his bid price within the range in which he would be successful would not affect the contract price. If a particular bidder is sure that changing the *quantity* he specifies will not affect the contract price, as would be the case if the change is small enough so as not to change the identity of the first unsuccessful bidder and if his demand curve is linear over the relevant range, his quantity specifications would tend to equal the quantity he would demand at the mean of the prices that he expects to result. To the extent that he is mistaken as to the ultimate price, misallocation will result. Even more serious, the resulting bids do not provide in themselves the information necessary to enable the marketing agency to determine the Pareto-optimal result.

VI. Summary

The problem of securing Pareto-optimal results in imperfect markets is thus a moderately difficult one. In the special class of cases where it is known that each purchaser will want a specified quantity or none at all (in particular, where the entire lot or contract must be taken up by a single bidder or where each bidder wants either one unit or none at all) and the total amount to be sold is fixed in advance, it is possible, by establishing in advance that the price is to be determined by the first rejected bid, to achieve the Pareto-optimal result. Moreover, in spite of this method's appearing to accord a lower price than necessary after the bids are in, the higher level of bids induced by this method results, on balance, in a price averaging-out at the same level as would be obtained under Dutch auction, individual bid pricing, or last-accepted-bid pricing methods, at least for cases where the bidders are symmetrical with respect to the *a priori* information which each one has about the probability distribution of the values or bids of the others. In such cases there is a rather strong presumption that a switch from other methods of negotiation to a first-rejected-bid pricing method would be to the long-run advantage of all concerned, the gain being derived from the greater certainty of obtaining a Pareto-optimal result and from the reduction in non-productive expenditure devoted to the sizing-up of the market by the bidders. To be sure, these conclusions are based on a model in which a high degree of rationality and sophistication is imputed to the bidders; nevertheless, in many markets the frequency of the dealings and the professional characteristics of the dealers are such as to make such an assumption not too far from reality; moreover, the change to the first-rejected-price method would substantially diminish the amount of sophistication required to achieve the optimum result.

Where there is a significant asymmetry in the *a priori* positions of the bidders, this conclusion must be somewhat modified: the one complete analysis of an asymmetrical case shows that in some cases the change to the first-rejected-bid method may be to the advantage of the seller but that in other cases it may be substantially to his disadvantage. To extrapolate rather rashly from a single example, one may hazard the generalization that, in the change to the first-rejected-bid or progressive method, bidders who have relatively greater knowledge of the probable behavior of other bidders, either through greater astuteness, more intensive research, or simply through their own position being inherently less patent than that of other bidders—as is exemplified in the example given by bidder 1 having

a value drawn from a distribution over the interval (0.1), and knowing the fixed value the article has for bidder 2, whereas bidder 2 is in relative ignorance concerning the value drawn by bidder 1—will tend to lose the advantage which their superior information gives them in the less determinate situation, whereas the less informed bidders tend to gain, sometimes rather substantially, as their lack of information becomes irrelevant to their behavior in the situation where all they are called upon to do is to make a bid equal to their full value. In situations where the relatively uninformed bidders are the ones more likely to be the successful bidders, the seller can expect to lose, whereas if the informed bidders are the ones more likely to become purchasers, the seller stands to gain from the change. The total gain from the change will always be positive, however.

When it comes to markets where the amounts which each trader might buy or sell are not predetermined but are to be determined by the negotiating procedure along with the amount to be paid, the prospects for achieving an optimum allocation of resources become much dimmer. A theoretical method exists, to be sure, which involves essentially paying each seller for his supply an amount equal to what he could extract as a perfectly discriminating monopolist faced with a demand curve constructed by subtracting the total supply of his competing suppliers from the total demand, and symmetrically for purchasers. But whether this method is thought of in terms of an exclusive state marketing agency operating as an intermediary between suppliers and sellers or in terms of sales or purchases by a government agency on its own account, the method is far too expensive in terms of the inflow of public funds that would be required, in a context where perfectly efficient sources of additional public revenues do not exist. Indeed, if speculation in the usual sense is trading motivated by the prospect of profit, it would hardly be expected that "counterspeculation," motivated by substantially contrary objectives, could be anything but a losing proposition. It may be that further analysis might reveal methods of dealing with imperfect markets that would produce a substantial improvement in the allocation of resources without incurring prohibitive costs, but the analysis of the relatively simple cases discussed here has already shown itself fairly intricate, so that the matter must be left here for the time being.

APPENDIX I

Analysis of the Homogeneous Rectangular Single-Prize Bidding Game

Given N players, designated by $i = 1, 2, 3, \ldots, N$, each drawing a value v_i from a rectangular distribution ranging from 0 to 1, and bidding for a single prize, the

probability that the first $N-1$ players all draw values between 0 and v while the Nth player draws a value between v and $v+dv$ is $v^{N-1}\,dv$; allowing for the possibility that any of the N players might have the top value, the probability that the highest value drawn lies between v and $v+dv$ is then given by the expression $dP_1(v) = N\,v^{N-1}\,dv$. In this event the price, assuming that each player puts in a bid $b_i = [(N-1)/N]\,v_i$, will be $p_d = [(N-1)/N]\,v$, and thus the expected price is

$$\bar{p}_d = \int p\,dP_1(v) = \int_0^1 \left(\frac{N-1}{N}\right) v N v^{N-1} dv = \frac{N-1}{N+1},$$

corresponding to an expected highest value drawn of $N/(N+1)$. This result can be compared with the results under progressive or "common" auctioning, where the price is equal to the second highest value drawn. The probability that this second highest value lies between v and $v+dv$ is then given by the expression $dP_2(v) = N(N-1)\,v^{N-2}(1-v)\,dv$, so that the average price is

$$\bar{p}_c = \int v\,dP_2(v) = \int_0^1 N(N-1)(v^{N-1} - v^N)\,dv$$
$$= (N-1) - \frac{N(N-1)}{N+1} = \frac{N-1}{N+1},$$

which is the same as for the Dutch auction. The bidders' surplus again has the expected value of $1/(N+1)$, and the expected value of the object in the hands of the successful bidder is again the same, $N/(N+1)$. Thus in terms of average expected outcomes, the two methods of auctioning are equivalent.

The probability distributions of the gains realized by the buyers and sellers, however, are quite different under the two methods of auctioning. The variance of the price under the Dutch auctioning method is

$$\sigma^2_{pd} = \int (p_d - \bar{p}_d)^2 dP_1(v)$$
$$= \int_0^1 \left(\frac{N-1}{N}v - \frac{N-1}{N+1}\right)^2 N v^{N-1} dv = \frac{(N-1)^2}{N(N+1)^2(N+2)}.$$

Under the progressive auction method the variance is

$$\sigma^2_{pc} = \int (p_c - \bar{p}_c)^2 dP_2(v)$$
$$= \int_0^1 \left(v - \frac{N-1}{N+1}\right)^2 N(N-1)(v^{N-2} - v^{N-1})\,dv = \frac{2(N-1)}{(N+2)(N+1)^2}.$$

The difference in variance for the gain to the buyers is even wider: in the Dutch auction the buyer's gain is $v - p = v - [(N-1)/N]\,v = v/n$, v being the highest value drawn; the range of possible gains is from 0 to $1/N$, whereas with the progressive auction the gain can vary all the way from 0 to 1. Since with the Dutch auction the gain is always proportional to the price:

$$g_d = \frac{1}{N-1}\,p_d,$$

we have for the variance of the gain

$$\sigma_{gd}^2 = \frac{1}{(N-1)^2}\,\sigma_{pd}^2 = \frac{1}{N(N+1)^2(N+2)}.$$

With the progressive auction, for a given bidder to obtain a gain of g or more after drawing a value of v requires that all other bidders draw values less than $v - g$; the total probability of some bidder obtaining a gain of more than g thus is

$$P_c(g) = N\int_{v=g}^{1} (v-g)^{N-1}\,dv = (1-g)^N.$$

The variance of the gain, then, is

$$\sigma_{gc}^2 = \int (g-\bar{g})^2 dP_c(g) = \int_{g=1}^{0} \left(g - \frac{1}{N+1}\right)^2 d(1-g)^N$$

$$= \frac{N}{(N+1)^2(N+2)}.$$

This is N^2 times as great as for the Dutch auction.

APPENDIX II

Analysis of Asymmetrical Rectangular 2-Person Bidding Games

Bidder 1 draws his value v_1 from a rectangular distribution ranging from 0 to 1, while bidder 2 draws his value v_2 from a rectangular distribution ranging from a to $b \leqq 1$. Let $y_1(x)$ and $y_2(x)$ be the respective probabilities of a bid of less than x by bidders 1 and 2, respectively, and $v_1(x)$ and $v_2(x)$ the value drawings by the two players that are to lead them to make a bid of x. Then the expected gain $E(g_1)$ to bidder 1, if he draws a value v_1 and makes a bid of x, will be the amount of gain if he is successful, $(v_1 - x)$, times the probability of success, which is, of course, the probability $y_2(x)$ that bidder 2 bids less than x.

A necessary condition for an equilibrium point such that neither bidder can gain by bidding other than according to the relation $v_i(x)$, then, is that $E(g_1) = y_2(x)\,(v_1 - x)$ shall be a maximum with respect to x, which requires, for all values of x for which $y_2(x)$ is continuous,

$$\frac{\partial E(g_1)}{\partial x} = -y_2(x) + (v_1 - x)\frac{dy_2}{dx} = 0, \tag{1}$$

and similarly

$$\frac{\partial E(g_2)}{\partial X} = -y_1(x) + (v_2 - x)\frac{dy_1}{dx} = 0. \tag{2}$$

From the way v_1 and v_2 are drawn, we can put

$$y_1(x) = v_1(x) \tag{3}$$

and

$$y_2(x) = \frac{1}{b-a}[v_2(x) - a] \tag{4}$$

(e.g., if the probability of a bid of less than x by bidder 2 is 0.3, then the value drawing that induces a bid of x must be $v_2(x) = a + 0.3[b - a]$).

If the solution is to be Pareto-optimal, we must have $v_1(x) = v_2(x)\ (= v(x))$ for all values of x for which both v_1 and v_2 lie within the range of possible drawings; otherwise there would be the possibility that the person drawing the lower value would obtain the object, leading to misallocation of resources. But if we make the indicated substitutions, this requires simultaneously that

$$-v + (v - x)\frac{dv}{dx} = 0\,, \tag{5}$$

and

$$-\frac{1}{b-a}(v-a) + (v-x)\frac{1}{b-a}\frac{dv}{dx} = 0\,, \tag{6}$$

which is possible only if $a = 0$. If we restrict the model to the case $a = 0$, equation (5) can be written $v\,dv = v\,dx + x\,dv = d(xv)$, which can be integrated directly to give $\frac{1}{2}v^2 = xv + c$, or $x = (v/2) - (c/v)$. If we assume some lower bound for bids as v approaches zero (having normalized the v_1 values to the range 0 to 1, we cannot rule out negative bids per se), this implies that $c = 0$, and we get, for the bidding rule, simply $x = v/2$ for $0 \leqq v \leqq b$.

However, not even this provides an equilibrium, since if player 2 follows this pattern, then for $v_1 > b$, bidder 1 will increase his gain without diminishing his chances of success by reducing his bids from $\frac{1}{2}v_1$ to $\frac{1}{2}b$; if he does this, however, there will then be a temptation for player 2 to bid more than $\frac{1}{2}b$ on some occasions, since by doing so his chances of winning are substantially increased. Hence Pareto-optimality is incompatible with Nash-equilibrium in this case also.

If we abandon the requirement of Pareto-optimality and look for a general Nash-equilibrium point without this stipulation, the solution runs into considerable mathematical difficulty. For purposes of simplification we can put

$$z_1 = \frac{y_1}{y_1'} \quad \text{and} \quad z_2 = \frac{y_2}{y_2'}, \qquad \left(y_1' = \frac{dy_1}{dx},\ \text{etc.}\right), \tag{7}$$

so that equations (1) and (2) become

$$v_1 - x = z_2 \tag{8}$$

$$v_2 - x = z_1\,; \tag{9}$$

while substituting equations (3) and (4) in equation (7) we get

$$z_1 = \frac{v_1}{v_1'} \tag{10}$$

and

$$z_2 = \frac{v_2 - a}{v_2' - a}\,. \tag{11}$$

Using equation (8) to eliminate v_1 from equation (10) and using equation (9) to eliminate v_2 from equation (11), and clearing fractions, we have

$$z_1 z_2' + z_1 = z_2 + x \tag{12}$$

and

$$z_2 z_1' + z_2 = z_1 + x - a \,. \tag{13}$$

Adding equations (12) and (13), we get

$$z_1 z_2' + z_2 z_1' = 2x - a \,. \tag{14}$$

Since the left-hand side of equation (14) is an exact differential, we can now integrate:

$$z_1 z_2 = x^2 - ax + k \,. \tag{15}$$

Solving equation (15) for z_1 and putting the results in equation (12), we have

$$(x^2 - ax + k)(z_2' + 1) = z_2 (z_2 + x) \,. \tag{16}$$

While equation (16) is now a relatively simple differential equation involving only $z_2(x)$, $z_2'(x)$, and x, it resists solution by analytical methods (even for $a = 0$) while if an approximate numerical quadrature is to be made, it is not immediately obvious what the required boundary conditions are to be that will determine k and the second constant of integration.

APPENDIX III

A Simplified Asymmetrical Bidding Game

In this game bidder 1 draws his value v_1 from a rectangular distribution of range 0 to 1, while bidder 2 has the fixed value $v_2 = a$.

If we allow bidder 2 to determine his bid x by a random drawing from a distribution selected by him, we can now let $y_2(x)$ be the probability that his bid will be less than x, this function now being determined directly by bidder 2. The equilibrium conditions then become

$$-y_2(x) + (v_1 - x)\, y_2'(x) = 0 \tag{17}$$

and

$$-y_1(x) + (a - x)\, y_1'(x) = 0 \,, \tag{18}$$

where for bidder 1 we again have

$$y_1(x) = v_1(x) \,. \tag{19}$$

Equation (18) can be integrated directly, after dividing through by $y_1(x)\,(a - x)$ to separate the variables, giving $\log (a - x) + \log y_1(x) = x_1 \log k$, or $(a - x)\, y_1(x) = k$, which by the use of equation (19) gives

$$x = a - \frac{k}{v} \tag{20}$$

as the rule by which bidder 1 is to determine his bid, at least for any range of x where $y_2'(x)$ is continuous.

To determine an appropriate value for the constant of integration k, some general propositions concerning the necessary nature of the various probability distributions can be invoked. Obviously, the probability $p_i(x)$ that a bid of x by bidder i will be a winning bid for i, is a non-decreasing function of x for any given behavior pattern of the remaining bidders. Also $v_i(x)$ must be a non-decreasing function for each bidder i, for suppose v^* to be a value drawing greater than v, and x^* and x the corresponding bids, with $x^* < x$; then, if $p(x^*) = p(x)$, it would become profitable to make a bid of x^* rather than x in response to a drawing of v; if $p(x^*) < p(x)$, it would become profitable to interchange the bids and bid x for a value of v^* and x^* for a value of v, the gain being

$$[(v^* - x)\,p + (v - x^*)\,p^*] - [(v - x)\,p + (v^* - x^*)\,p^*]$$
$$= (v^* - v)\,(p - p^*) > 0.$$

If the value drawings of the different players are uncorrelated, this interchange will have no repercussions on the other players.

Let x_m be the greatest lower bound of the possible winning bids under equilibrium conditions. It can be shown that if $y_i(x)$ has a discontinuity at x_d, implying that the probability p_d that bidder i makes a bid of exactly x_d is positive, then $x_d \leqq x_m$. This can be seen as follows: suppose $x_m < x_d$; let B be the least upper bound of all bids $b \leqq x_d$ by bidders other than i, and let V be the least upper bound of all values corresponding to such bids by bidders whose possible bids individually have the least upper bound B. If $B < x_d$, bidder i could increase his expected gains by reducing all his bids of x_d to $B + \varepsilon$, since there are no competing bids in the interval. Hence $B = x_d$. If $V > x_d$, then, for any $\varepsilon > 0$, there exists a value v_ε capable of being drawn by some bidder j ($\neq i$) with a corresponding bid b_ϵ such that $x_d - \varepsilon < b_\epsilon \leqq x_d$ and $V - \varepsilon < v \leqq V$; raising this bid from b_ϵ to $x_d + \varepsilon$ will increase the probability of winning by at least $p_d\,p_i(x_d)$, and this will be sufficient, for sufficiently small ε, to outweigh the reduction in the amount of profit in case of a win by something less than 2ε, so that this cannot be an equilibrium situation, and for equilibrium we must have $V \leqq x_d$. If $V < x_d = B$, then all bids b^- such that $V < b^- < B = x_d$ have $v^- < b^-$ resulting in a loss if they are the winning bid; if no such bids win, we have $x_d \leqq x_m$, Q.E.D. Any such bid that might win can be profitably reduced to a bid equal to v. If, finally, $V = x_d$, and there is some bid $b^* < x_d$ with $p_j(b^*) > 0$, then for any $\varepsilon > 0$, there will exist a value v^+ capable of being drawn by some bidder j ($\neq i$), with a corresponding bid b^+, such that $x_d - \varepsilon < v^+ \leqq x_d$ and $x_d - \varepsilon < b^+ \leqq x_d$, implying $v^+ - b^+ < \varepsilon$; so that, for sufficiently small ε, $p_j(b^+)\,(v^+ - b^+) < \varepsilon < p_j(b^*)\,(v^+ - b^*)$, implying that in this case it would be profitable to reduce the bid from b^+ to b^*. Hence $p_j(b^*) = 0$ for all $b^* < x_d$, and $x_d \leqq x_m$.

Any bids with lumped probabilities can thus occur, if at all, only at the bottom of the range of possibly successful bids, implying that for bids above the minimal winning bid and for value distributions that are dense, the function $v(x)$ must be continuous, while $x = v$ can occur only for $x = x_m$.

In the case at hand, equation (20) must hold at all points where $x \neq v_1$ and $y_2 \neq 0$; k must obviously be positive, otherwise the relationship would be perverse. In this two-bidder case, the maximum bid must be the same for the two bidders, since any bid by one higher than the maximum bid of the other could be

reduced with profit. Suppose $k < a^2/4$, so that the condition $x = v_1$ is realizable at the two roots r_1 and r_2 of the quadratic equation $x^2 - ax + k = 0$; if r_2 is the larger root, $x_m = r_2$ and $y_2(r_2) = 0$. Putting this in equation (17), we obtain

$$\frac{y_2'}{y_2} = \frac{a - x}{(x - r_1)(x - r_2)}, \qquad \text{or} \qquad (r_2 - r_1)\frac{y_2'}{y_2} = \frac{r_1}{x - r_2} - \frac{r_2}{x - r_1}. \quad (21)$$

This can be integrated to yield

$$(r_2 - r_1)\log y_2 = r_1 \log (x - r_2) - r_2 \log (x - r_1) + \log A\ , \quad (22)$$

or

$$y_2^{r_2 - r_1} = A\,(x - r_2)^{r_1}(x - r_1)^{r_2}\ . \quad (23)$$

This function runs from $y_2(r_2) = 0$ to $y_2(a - k) = 1$, by suitable choice of the constant of integration A, so that $a - k$ is the maximum bid for player 2 as it is for player 1, as indicated by putting $v_1 = 1$ in equation (20).

This equilibrium has only a precarious stability, however, for its stability depends, on the one hand, on player 1 actually bidding according to equation (20) for all drawings of v from 0 to 1, even though this means making potentially dangerous bids of more than v for drawings of v between r_1 and r_2; any reduction in such bids would create an inducement for player 2 to put in some bids of less than r_2, and the equilibrium breaks down. Even if player one persists in following equation (20) to the letter, there is no positive short-run disadvantage to player 2 if he puts in bids of less than r_2; indeed, while neither player gains immediately by lowering his bid, he does not lose, and the resulting breakdown of the equilibrium tends to shift the equilibrium in the direction of a higher value of k, which is ultimately to the advantage of both bidders, so that one can hardly call the solutions reached for these values of k really stable.

On the other hand, if $k > a^2/4$, the function $v_1 = k/(a - x)$ lies entirely above the line $v_1 = x$, so that $v_1 - x > 1/h$, say, for some fixed positive h for all x; equation (17) now implies

$$y_2' = \frac{1}{v_1 - x}\, y_2 < h y_2\,,$$

so that the curve $y_2(x)$ is always flatter than curves of the form $y = Ae^{hx}$ and thus can never reach the x-axis, no matter how far out on the negative x-axis we go. Nevertheless, in practice there will always be some lower bound on the bids that will be accepted. If the bidding distributions are terminated by a lumped probability at this lower bound, however, it immediately becomes profitable to shade the minimum bids upward, and no equilibrium is established.

There remains the case of $k = a^2/4$; now $v_1(x)$ is tangent to $v = x$ at $x = a/2$. Equation (20) now becomes

$$v_1 = \frac{a^2}{4(a - x)}\,,$$

and putting this in equation (17) gives

$$y_2 = \frac{1}{4(a - x)}(a^2 - 4ax + 4x^2)\, y_2', \qquad \text{or} \qquad \frac{y_2'}{y_2} = \frac{4(a - x)}{(2x - a)^2}, \quad (24)$$

which can be integrated to give

$$\log y_2 = -\log(2x-a) - \frac{a}{2x-a} + C. \tag{25}$$

For all values of C we have $y_2 = 0$ for $x = a/2$. Bidder 2's minimum bid is thus $a/2$, and all bids of less than this by bidder 1 are non-winning. In order for the maximum bids to be the same, since we have, for $v_1 = 1$,

$$x = a - \tfrac{1}{4}a^2,$$

for $y_2 = 1$ we must have

$$\log y_2 = 0 = -\log(a - \tfrac{1}{2}a^2) - \frac{2}{2-a} + C, \tag{26}$$

so that

$$C = \log \frac{a(2-a)}{2} + \frac{2}{2-a},$$

and equation (25) becomes

$$\log y_2 = \log \frac{a(2-a)}{2(2x-a)} + \frac{2}{2-a} - \frac{a}{2x-a}. \tag{27}$$

This solution for the case $a = 0.8$ is illustrated in Figure 3. The pro forma bids put in by player 1 when he draws a value of less than $a/2$ can take any form between the limits $x = v_1$ and $x = a - (1/4v_1)a^2$, without leading to any immediate breakdown of the equilibrium. Other bids would not be immediately disastrous, but, of course, a bid of greater than v would risk loss if the bid were successful, while consistent bids of less than $a - (1/4v_1)a^2$ would tempt bidder 2 to change his strategy.

The expected payment by bidder 1 would be

$$\int_{v_1=(1/2)a}^{1} y_2(x)\, x\, d\, v_1(x),$$

and similarly for bidder 2 it would be

$$\int_{y_2=0}^{1} v_1(x)\, x\, d\, y_2(x).$$

Integrating this latter expression by parts, we have

$$\int_{y_2=0}^{1} v_1 x\, d\, y_2 = v_1 x y_2 \Big|_{y_2=0}^{y_2=1} - \int_{y_2=0}^{1} y_2\, d(v_1 x)$$

$$= v_1 x \Big|^{v_1=1} - \int_{y_2=0}^{1} y_2\, v_1\, dx + y_2 x\, d\, v_1. \tag{28}$$

Since the limits of integration are equivalent, the integral of the last term is equal to the expected payment of bidder 1, so that the total expected payment received by the seller is

$$a - \frac{a^4}{4} - \int_{x=a/2}^{a[1-(1/4)a]} \frac{a(2-a)}{2(2x-a)} e^{[2/(2-a)-a/(2x-a)]} \frac{a^2}{4(a-x)}\, dx$$
$$= 1 - b^2 - b(1-b)^2 e^{1/b} \int_0^b \frac{1}{(1-u)u} e^{-1/u}\, du, \tag{29}$$

where

$$u = \frac{2x-a}{a} \quad \text{and} \quad b = \frac{2-a}{2}. \tag{30}$$

The integral in equations (29) cannot be evaluated in terms of standard functions, but it can readily be evaluated for specific values of a and b, for example, by Simpson's rule. The interesting comparison is with the progressive auction in which, for v_1 greater than a, bidder 1 gets the article at a price a, while for a v_1 less than a, bidder 2 gets the article at a price of v_1. The average price thus is $a - \frac{1}{2}a^2$. With the Dutch auction the average realized price turns out to be greater than this for a greater than about 0.43, and less for values below 0.43.

The expected consumer's surplus, for the optimal allocation achieved with progressive auctioning is $\frac{1}{2}(1-a)^2$ for bidder 1 and $\frac{1}{2}a^2$ for bidder 2, yielding a total expected value of $\frac{1}{2}(1+a^2)$. Under the Dutch auction the expected consumer's surplus for the first bidder is $\int y_2(v_1 - x)dv_1$ for the first bidder and $\int v_1(a - x)dy_2$ for the second. These integrals again must be evaluated by approximate numerical methods; it is possible, however, to express the various quantities in terms of a common integral function as is shown in the following summary table:

Average Expectation of	Progressive Auction			Dutch Auction	
	$a \le 0$	$0 \le a \le 1$	$a \ge 1$	$0 \le a \le 2$	$a \ge 2$
1. Payment by 1	a	$a - a^2$	0	$(1-\lfloor a/2 \rfloor)^2(a/2)(2-\lfloor a/2 \rfloor) - F(a)$	0
2. Payment by 2	0	$\frac{1}{2}a^2$	$\frac{1}{2}$	$1/4a^2(3-a)$	1
3. Receipts of seller (1+2)	a	$a(1-a/2)$	$\frac{1}{2}$	$a/2(2-a+\lfloor a^2/2 \rfloor - \lfloor a^3/8 \rfloor) - F(a)$	1
4. Net gain of 1	$(1-2a)/2$	$\frac{1}{2}(1-a)^2$	0	$\frac{1}{2}(1-\lfloor a/2 \rfloor)^4 + \frac{1}{2}F(a)$	0
5. Net gain of 2	0	$\frac{1}{2}a^2$	$a - \frac{1}{2}$	$\frac{1}{4}a^2$	$a-1$
6. Total value (3+4+5)	$\frac{1}{2}$	$\frac{1}{2}(1+a^2)$	a	$\frac{1}{2} + \frac{1}{2}a^2 - \frac{1}{32}a^4 - \frac{1}{2}F(a)$	a

where $F(a) = \frac{1}{4}a^2(1-\frac{1}{4}a)e^{2/(2-a)} \int_0^{1-a/2} [u/(1-u)]e^{-1/u}du$

Figure 4 gives a general picture of how these various quantities behave as a changes.

CONCENTRATION IN INSTITUTIONAL COMMON-STOCK PORTFOLIOS

NORMAN C. MILLER*
New York Stock Exchange

I. INTRODUCTION

THE POINT HAS often been made that the common-stock holdings of institutional investors are concentrated in relatively few issues. Thus:

> It appears that the stocks of somewhere between 50 and 150 companies are most represented in the portfolios of institutions, and these tend to include the better known issues.[1]
>
> It is generally conceded that financial institutions tend to concentrate their common stock holdings in the so-called "blue chips" or "the favored fifty" or whatever designation one cares to give to the stocks of large, financially strong, and well-established corporations.[2]

What evidence there is certainly suggests that such concentration does exist, both in holdings and in transactions. For example, the Senate Committee on Banking and Currency in the course of their 1955 study of the stock market assembled data on the share purchases and sales of 210 financial institutions in 25 leading common-stock issues—covering the 34-month period January 1, 1953, to October 31, 1955—which showed that ". . . dollar purchases of the 25 stocks as a per cent of the total purchases [of all common stocks] varied from 10 per cent for fire-insurance companies to about 25 per cent for corporate pension funds . . . [and] . . . sales of the 25 stocks as a per cent of total sales varied from 5 per cent for life insurance companies to 17 per cent for corporate pension funds."[3] In terms of net acquisitions (purchases less sales), comparable percentages ranged from 35 per cent for life insurance companies to 17 per cent for casualty insurance companies.[4]

* The conclusions and views expressed in this paper are personal and are not to be identified with the New York Stock Exchange.

1. An excerpt from a statement by the National Association of Securities Dealers in U.S. Congress, Senate, Committee on Banking and Currency, *Hearings on Factors Affecting the Buying and Selling of Equity Securities* (84th Cong., 1st sess. [1955]), p. 354.

2. Sherwin C. Badger, "Funds in the Stock Market," *Harvard Business Review*, July–August, 1956, p. 34.

3. U.S. Congress, Senate, Committee on Banking and Currency, *Staff Report, Institutional Investors and the Stock Market, 1953–55* (1956), pp. 25–26.

4. *Ibid.*

The difficulty with this conclusion that there is concentration in institutional portfolios, however, is that it has apparently led some to infer (*a*) that this concentration is primarily a consequence of a greater aversion to speculative, as compared to so-called "blue chip," issues by institutions than by other investors, and (*b*) that, because institutions concentrate their holdings in relatively few issues, they therefore hold large percentages of the shares outstanding of these issues.

The argument of this paper is that neither of these inferences follows from the fact that institutions tend to concentrate their holdings in relatively few issues. The critical variable that has been overlooked is the size distribution of common-stock issues themselves. To put it simply and schematically: if 50 per cent of the shares held by institutions are those of company X, but at the same time 50 per cent of all shares outstanding of all companies are also those of company X, then it is quite possible that these institutions may hold only some small fraction of company X's shares. In Section II, data will be presented which in fact confirm that, because of the size distribution of shares listed on the New York Stock Exchange, the fact that institutions concentrate their holdings need not imply that they therefore hold large proportions of each of the issues in their aggregate portfolio. In Section III, some of the reasons why institutions concentrate their holdings will be explored.

II. Structure of Institutional Holdings, 1949 and 1954

117 Institutions, 1954.—The Department of Research and Statistics of the New York Stock Exchange recorded on IBM punch cards several years ago data on the holdings of NYSE listed common stocks at the end of 1954 for 117 institutions of the diversified investment type. Similar data were also recorded for earlier years back to year-end 1949 for 76 of these institutions. Although the data were originally recorded for an entirely different purpose, they lent themselves very well to an analysis of concentration in institutional common-stock portfolios.

To investigate this subject, the author took an available ranking of listed common-stock issues for the end of 1954 according to total value outstanding and arbitrarily grouped these stocks into different size classes. Against this ranked list were placed holdings of each issue of 117 diversified institutional investors divided into the following categories: 20 life insurance companies, 30 fire and casualty in-

surance companies, 26 investment companies (19 mutual funds and 7 closed-end funds), and 41 college endowment funds.[5]

Table 1 shows for year-end 1954 the distribution of these holdings over the spectrum of size classes ranging from the largest to the smallest issues. Shown are separate distributions for each of the four types of institutions and one for all 117 institutions. Also presented for comparison is the distribution of all outstanding listed common stocks by issue size class.

TABLE 1*

HOLDINGS OF NYSE LISTED COMMON STOCKS BY 117 DIVERSIFIED INSTITUTIONAL INVESTORS DISTRIBUTED BY VALUE OF TOTAL ISSUE OUTSTANDING, DECEMBER 31, 1954

MARKET VALUE OF TOTAL ISSUES OUTSTANDING (MILLIONS)	NO. OF ISSUES	PER CENT DISTRIBUTION OF MARKET VALUE OF HOLDINGS					PER CENT DISTRIBUTION OF MARKET VALUE OF ALL STOCKS OUTSTANDING
		20 Life Ins. Cos.	30 Fire & Casualty Ins. Cos.	26 Inv. Cos.	41 Colleges	Total: 117 Insts.	
$7,100–$8,600	4	12.9	11.3	6.4	12.9	9.1	19.8
$1,500–$4,000†	10	12.6	16.3	10.5	16.7	12.9	13.6
$ 750–$1,499	15	10.1	13.6	12.9	14.1	12.9	9.6
$ 500–$ 749	24	13.0	11.5	12.1	12.0	12.1	9.3
$ 400–$ 499	21	7.9	7.5	7.2	6.6	7.3	6.0
$ 300–$ 399	28	9.5	7.9	9.4	7.8	8.9	6.1
$ 200–$ 299	63	16.5	10.6	12.1	11.7	12.2	9.5
$ 100–$ 199	125	12.8	14.4	17.3	11.6	15.4	11.3
$ 50–$ 99	167	2.4	3.8	8.9	4.5	6.4	7.4
$ 25–$ 49	194	1.3	2.9	2.7	1.9	2.5	4.4
Less than $25	425	0.8	0.3	0.4	0.3	0.4	3.1
All issues	1,076	100.0	100.0	100.0	100.0	100.0	100.0

* Percentages may not add to 100 because of rounding.

† No listed issues between $4.0 billion and $7.1 billion.

It is obvious from the data in Table 1 that a sizable proportion of institutional portfolios was represented by the larger issues. For example, the holdings by these 117 institutions of the largest 165 issues—all issues down to as small as $200 million outstanding—

5. The author estimates that this sample represented one-third of the holdings of listed common stocks by all diversified investors of those types in the sample, plus foundations and other non-profit institutions, corporate non-insured pension funds, common trust funds, and mutual savings banks. Trust departments of banks are included in this universe of diversified investors, but only to the extent that there are institutions in the above categories which are bank administered. Excluded are personal trust funds (other than common trusts) and investment companies and foundations with non-diversified portfolios. This sample-to-universe proportion is determined from data organized each year by the research staff of the New York Stock Exchange to estimate how much stock listed on the Exchange is held by institutional investors.

constituted three-fourths of their total holdings of listed common stocks. Restricting this still further, the top four issues alone made up 9.1 per cent of their holdings, and the largest 53 issues (issues of $500 million outstanding and up) were 47 per cent of the total.

But that this is far from the whole story can be seen by a comparison in Table 1 between the distribution of institutional holdings and the distribution of all outstanding stocks. This indicates that institutional holdings in issues in the two largest size classes—14 stocks

TABLE 2*

HOLDINGS OF NYSE LISTED COMMON STOCKS BY 117 DIVERSIFIED INSTITUTIONAL INVESTORS DISTRIBUTED BY VALUES OF TOTAL ISSUE OUTSTANDING, DECEMBER 31, 1954

MARKET VALUE OF TOTAL ISSUES OUTSTANDING (MILLIONS)	NO. OF ISSUES	PER CENT OF TOTAL OUTSTANDING MARKET VALUE IN SIZE CLASS HELD BY				
		20 Life Ins. Cos.	30 Fire & Casualty Ins. Cos.	26 Inv. Cos.	41 Colleges	Total: 117 Institutions
$7,100–$8,600	4	0.30	0.58	0.69	0.31	1.88
$1,500–$4,000†	10	.43	1.21	1.64	.60	3.88
$ 750–$1,499	15	.49	1.42	2.85	.71	5.47
$ 500–$ 749	24	.65	1.26	2.78	.62	5.31
$ 400–$ 499	21	.61	1.25	2.55	.53	4.94
$ 300–$ 399	28	.73	1.31	3.29	.63	5.96
$ 200–$ 299	63	.80	1.12	2.69	.59	5.22
$ 100–$ 199	125	.52	1.29	3.25	.50	5.55
$ 50–$ 99	167	.15	0.51	2.55	.29	3.50
$ 25–$ 49	194	.14	0.67	1.29	.21	2.31
Less than $25	425	0.12	0.10	0.26	0.04	0.52
All issues	1,076	0.46	1.01	2.12	0.48	4.08

* Percentages may not add to totals shown because of rounding.
† No listed issues between $4.0 billion and $7.1 billion.

—were below "normal," especially in the case of the four largest (9.1 per cent in contrast to 19.8 per cent for all outstanding shares). In the issues ranging in size from below $1,500 million down to $100 million, institutional holdings were above the expected "norm" in all size classes. Finally, in the bottom three classes, the institutional proportions dropped below those for all stocks.

This pattern is revealed more clearly in Table 2. This table contains for each size class the per cent of total outstanding market value in that class held by each institutional type and all 117 institutions together at the same date. For example, these 117 institutions held 1.88 per cent of the total market value outstanding of the four

largest issues and 3.88 per cent of the next 10 issues. The 20 life insurance companies, in turn, owned 0.30 per cent and 0.43 per cent, respectively, of the stocks in these two classes.

Although the 117 institutions owned 4.08 per cent of the total market value of all listed common stocks, the comparable proportions owned within each of the size classes were below this in the largest two and the smallest three groups and above this in the others. In other words, insofar as the size of the issue is related to the relative amount of the outstanding stocks held by these institutions, the proportions tended to be comparatively low among the largest 14 issues or so, remain at a stable high level among issues from $1,500 million to $100 million outstanding, and decline to very low proportions thereafter.

The data also reveal some differences among the several types of institutions. The life insurance group, fire and casualty insurance group, and the college endowment group did manifest some variations in their distributions in Table 1, although the differences do not appear to be particularly striking nor to show much consistency in pattern. The investment company group, however, showed important differences from the others—principally, the much smaller holdings among the top 14 issues and the relatively more sizable investments in issues ranging in size from $50 million to $200 million. The outstanding characteristic of this distribution was the obvious tendency of investment companies to hold smaller issues than did any of the other institutional groups.[6]

Bank-administered pension funds, 1954.—In 1955, the New York State Banking Department published the results of a survey of pension, welfare, and profit-sharing plans administered by banks in that state acting as trustees.[7] Among the data presented were the aggregate holdings by these bank-administered funds of all common stocks combined, and of each of 206 common-stock issues—their largest holdings in market value at year-end 1954.[8] This writer has used these data to estimate the distribution of their total holdings of listed common stocks by the same size classes as those used in the 117-company analysis. Since data were published on only 171 *listed*

6. It should be noted at this point that a separate size-class analysis of all listed issues excluding utility stocks was made by the author for the 117 institutions. This revealed no changes in pattern significant enough to warrant altering any of the above conclusions.

7. George A. Mooney, *Pension and Other Employee Welfare Plans: A Survey of Funds Held by State and National Banks in New York State* (1955).

8. *Ibid.*, p. 4.

issues, holdings in only the larger-issue size classes could be estimated with any degree of reliability because they were the classes which included these issues. Therefore, all other classes were combined, and pension-fund holdings therein were determined as a residual, by subtracting the holdings in the larger size classes from an estimate of the total.[9] The resulting per cent distribution is shown in Table 3, along with the distributions of the holdings of the 117 institutions and of all outstanding listed common stocks.

TABLE 3

HOLDINGS OF NYSE LISTED COMMON STOCKS BY 117 DIVERSIFIED INSTITUTIONAL INVESTORS AND PENSION FUNDS ADMINISTERED BY NEW YORK STATE BANKS DISTRIBUTED BY VALUE OF TOTAL ISSUE OUTSTANDING, DECEMBER 31, 1954

MARKET VALUE OF TOTAL ISSUES OUTSTANDING (MILLIONS)	NO. OF ISSUES	PER CENT DISTRIBUTION OF MARKET VALUE OF HOLDINGS		PER CENT DISTRIBUTION OF MARKET VALUE OF ALL STOCKS OUTSTANDING
		117 Institutions	Pension Funds†	
$7,100–$8,600	4	9.1	10.0	19.8
$1,500–$4,000*	10	12.9	19.2	13.6
$ 750–$1,499	15	12.9	16.4	9.6
$ 500–$ 749	24	12.1	15.1	9.3
$ 400–$ 499	21	7.3	8.3	6.0
$ 300–$ 399	28	8.9	6.4	6.1
$ 200–$ 299	63	12.2	10.8	9.5
Less than $200	911	24.6	13.8	26.1
All issues	1,076	100.0	100.0	100.0

* No listed issues between $4.0 billion and $7.1 billion.
† Estimated.

Even allowing for a certain amount of error in the estimates, outstanding differences in pattern are apparent for pension funds. The comparison with the 117-institution distribution—and each of the types in Table 1—shows that the pension funds had a much greater proportion of their funds invested in the larger issues than did any of the other institutional types. Among the five classes containing the largest 74 issues, pension-fund holdings were relatively greater than were the holdings of the same issues by the other types of insti-

9. Total listed common-stock holdings of these funds were estimated by the author as being 87 per cent of their holdings of all common stocks. This proportion was derived directly from the list of 206 issues and should be very accurate, since the 206 issues represented 92.4 per cent of their total common-stock holdings.

tutions.[10] In the smaller size classes, pension-fund holdings were smaller, especially among issues less than $200 million in size.[11]

Comparison with 1949 for 76 institutions.—In order to learn whether any changes had taken place in this size structure of institutional holdings over the five-year period 1949–54, the portfolios of 76 of the 117 institutions were similarly analyzed for the end of 1949. The 76 institutions included all those in the 1954 analysis except for the 41 college funds, which were not recorded for earlier years.

Issues listed on the New York Stock Exchange at year-end 1949 were ranked and grouped into the same number of size classes as in the 1954 analysis. However, since the Exchange had no available list of issues ranked by size, as in 1954, the author had to make certain compromises to save labor. For the six largest issue classes, a complete ranking of issues was computed, and each class was established by including the same number of issues in it as the comparable class in 1954. For the smaller issue classes, class limits were established at from 42 to 45 per cent of the limits of comparable classes in 1954. This was done because the larger classes had limits which held similar relationships to each other between the two years. The data on institutional holdings within these smaller size classes were estimated by selecting issues at random until a satisfactory sampling was obtained for each class. Table 4 shows the results for both 1949 and 1954 for the 76 institutions. The class measures are the per cent of total outstanding stocks in each group held by these institutions, as in Table 2.

It should be emphasized that comparable size classes in the two years did not contain identical lists of issues. Some issues moved higher in the class "hierarchy"; others either moved lower, stayed in the same group, were listed after 1949, were delisted, or were merged with other companies. The sole purpose was to compare institutional holdings by comparable issue size structure.

The most important conclusion is that the general pattern of holdings with respect to size structure was approximately the same for both years. All 1954 classes showed higher percentages over their

10. Slight exceptions to this can be noted among the two insurance types and the college funds in the largest size class of four issues.

11. These findings, of course, are quite consistent with those made by the Senate Committee on Banking and Currency in their stock-market study. In their analysis of institutional purchases and sales of 25 common stocks, they found that pension funds concentrated a higher proportion of both their total purchases and their total sales in these 25 issues than all other institutions studied—life insurance companies, fire insurance companies, casualty insurance companies, investment companies, and common trust funds (cf. U.S. Congress, Senate, *op. cit.*).

comparable 1949 classes; yet there was no strongly apparent tendency for these institutions to move upward or downward in the size scale over the five years. A possible exception is indicated by the fact that the 1954 categories $100–$199 million and $50–$99 million were substantially higher in that year than were the comparable groups in 1949 ($45–$84 million and $22–$44 million). This was apparently due to the investment companies spreading their investments over corporations further down the size scale of listed issues.

TABLE 4

HOLDINGS OF NYSE LISTED COMMON STOCKS BY 76 DIVERSIFIED INSTITUTIONAL INVESTORS BY VALUE OF TOTAL ISSUE OUTSTANDING DECEMBER 31, 1949, AND DECEMBER 31, 1954

MARKET VALUE OF TOTAL ISSUES OUTSTANDING (MILLIONS)		NO. OF ISSUES		PER CENT OF TOTAL OUTSTANDING MARKET VALUE IN SIZE CLASS HELD BY 76 INSTITUTIONS	
1949	1954	1949	1954	1949	1954
$2,000–$3,750	$7,100–$8,600	4	4	1.1	1.6
$ 600–$1,350	$1,500–$4,000	10	10	2.9	3.3
$ 360–$ 599	$ 750–$1,499	15	15	2.6	4.8
$ 240–$ 359	$ 500–$ 749	24	24	3.4	4.7
$ 170–$ 239	$ 400–$ 499	21	21	4.0	4.4
$ 120–$ 169	$ 300–$ 399	28	28	3.3	5.3
$ 85–$ 119	$ 200–$ 299	*	63	4.2	4.6
$ 45–$ 84	$ 100–$ 199	*	125	3.0	5.1
$ 22–$ 44	$ 50–$ 99	*	167	1.8	3.2
$ 11–$ 21	$ 25–$ 49	*	194	1.3	2.1
Less than $11	Less than $25	*	425	0.3	0.5
All issues		1,017	1,076	2.6	3.6

* No count made. Data based on samples.

Whether this is indicative of a trend or not in this group of institutions cannot be determined in the absence of additional data, particularly a comparison with a recent year. Yet it would not be unreasonable to expect investment companies—and possibly other types of institutions—to look eventually among smaller issues for new purchases, especially if the institutions are growing rapidly and are reasonably adventuresome.

III. INFLUENCES ON INSTITUTIONAL PORTFOLIO STRUCTURES

In the previous section we saw that there is concentration in institutional common-stock holdings in one sense but not in another. In-

stitutions do tend to concentrate their portfolios among relatively few issues, but, because of the size structure of outstanding issues, the proportion of each of the issues held by the institutions tends not to be large. In this section we explore some of the factors that explain why institutions do tend toward some concentration in their portfolios among relatively few issues. First, we explore the implications of institutions *not* concentrating their holdings among these relatively few issues. Then, more positively, we consider why individual institutions might think it in their interest to concentrate their portfolios. Finally, we turn to the question of the effect on concentration of the size distribution of the institutions themselves.

The implications of the absence of concentration.—The fact that institutions are uniquely characterized as concentrating their stock holdings and, in fact, sometimes criticized for this implies that there are alternative approaches to stock investing available to institutions. The author recalls hearing a Wall Street financial writer state some time ago that he would expect institutional investors "to show more imagination" instead of buying the same issues as all other investors hold. This would suggest that institutions as a whole could (1) invest much more heavily in common stocks of smaller companies and less heavily in those of larger companies; and (2) significantly improve on their investment performance by doing so. Let us now analyze the extent to which this alternative investment policy is possible and feasible.

As stated earlier (see n. 5), these 117 institutional investors included in the 1954 sample owned one-third of the listed common stocks held by all diversified institutional investors. It has also been found that among these 117 institutions their holdings of the 53 largest listed common-stock issues (the four largest issue classes) made up 47 per cent of their aggregate portfolios of all such listed issues at year-end 1954 (see Table 1). If this is to be regarded as excessive concentration, one may fairly ask: What per cent becomes an "acceptable" one, as reflecting a lack of concentration? Ten per cent? Twenty per cent? Thirty per cent? For the sake of argument, let us assume that 20 per cent would be acceptable as not showing undue concentration. The problem is then to redistribute the holdings of 117 institutions in some way to arrive at a theoretical 20 per cent.

One way of redistributing these holdings would be to remove 27 per cent of the value from among the larger issue classes and put them among the two smallest issue categories, thereby reducing this 47 per cent concentration ratio to 20 per cent. Distributing them among most size classes other than the two lowest may be trouble-

some because, on the average, institutions already hold sizable proportions of the outstanding shares of these other issues.

Among the 117 institutions alone, this would involve "reinvesting" $1.8 billion worth of market value, adding this much to the holdings of the smallest 619 issues. Among all diversified institutions, the amount added to institutional holdings at the lower end of the scale would be $5.4 billion, because the 117 institutions represented one-third of the universe. Since at the end of 1954 the smallest 619 issues added up to $12 billion total outstanding market value, adding $5.4 billion to these holdings would result in almost half of the outstanding shares of these issues being held by all diversified institutions! Needless to say, this proportion can be augmented by the fact that (1) the proportion held would exceed 50 per cent among about half these issues, and (2) these issues would also be owned, in addition to the diversified institutions of the types analyzed here, by other large holders—such as nondiversified institutions, non-financial corporations, corporation executives and employees, and personal trust funds.[12] All this would leave little, if any, for the ordinary public individual investor.

The point is that a redistribution of this nature would be ridiculous. The results would not be much less ridiculous if institutions were to distribute the $5.4 billion among the lowest three classes instead of two. These classes have 796 issues, amounting to a total market value in 1954 of $24 billion. This redistribution would increase the average holding among these issues by 22.5 per cent of each issue outstanding. In the $50–$99 million class, 22.5 per cent would be added to 10.5 per cent (projection of the 3.5 per cent holding of the 117 institutions shown in Table 2). The result is that diversified institutions would have to hold more than 1 out of every 3 shares in this class.

There may be other less extreme redistribution possibilities to reduce the 47 per cent ratio to 20 per cent, but none will allow institutions to invest sensibly from any point of view one can think of (other than to remove the onus of concentration).

In conclusion, then, because of the size distribution of outstanding issues, it would seem to be a virtual impossibility for institutions not to manifest a considerable amount of concentration in their portfolios. To reduce significantly the degree of concentration, institutions would do harm to their investment performance in terms of

12. A recent survey of the American Bankers Association revealed that bank-administered personal trust funds held about $37 billion in common stocks in 1959. Roughly $30 billion of this was probably listed stock—or about 10 per cent of all listed stock outstanding.

yield and capital appreciation. Buying up the smaller issues over a long period of time might push up the prices of these issues to a level where yields become very low and the resulting unrealistically high ratios of prices to earnings make the future prospects of the stocks unattractive.

Diversification and size of issue outstanding.—When institutional holdings of common stocks are related to the amount outstanding, issue by issue, it has been found that such holdings were generally relatively small among the very largest issues and the smallest 600 or so listed stocks (Table 2). There are two possible reasons for this pattern:

1. *Diversification:* The gradation in Table 2 in the percentages from 2.3 per cent among the top four issues to 4.2 per cent among the next ten and 5.6 per cent among the third class is possibly explained by the diversification requirements of institutional investors. There is a tremendous difference in the average size of outstanding issues between the top class of four issues and each of the other classes. Thus institutional holdings of the larger issues, to an extent comparable to the smaller ones, would have required a huge dollar investment in the four largest issues. For example, referring to Table 2, if the 26 investment companies had held 2.6 per cent of the four largest issues instead of 0.7 per cent, their total investment in these stocks alone would have been about one-fourth of their total holdings of listed commons.

2. *Size of issue outstanding:* As a general rule, holdings of individual issues by institutions, at least among those investors analyzed here, were at least in 1,000-share lots per investor but were usually much more. Holdings of 10,000 shares and 50,000 shares were more common. In some stocks listed on the Exchange, 10,000 shares would have constituted 3–5 per cent of the total outstanding in 1954. For these issues, holdings of such magnitude might have been unattractive, both because of difficulty in finding sellers at the time the issue was to be purchased and because no market might exist later for that much stock when it was to be sold. A few issues of this size have very little trading over a long period of time. Although most issues have some activity, "thin markets"—a small absolute volume of trading activity—may be a substantial inhibiting influence against investing in small issues, especially where institutions may set some lower limit on the absolute amount to be held of any one issue.

Influence of concentration in size among institutions themselves.—However, there may be another factor which explains the reluctance of institutions to invest more heavily in small issues. This is

the high degree of concentration in size among most, and possibly all, institutional types. For example, at the end of 1957, five life insurance companies held 43 per cent of all life insurance company common-stock holdings. Among all mutual funds, five accounted for one-third of that group's common-stock investments. Finally, on June 30, 1958, two college endowment funds owned 15 per cent of the common stocks held by all such funds.

The impact of any special problems which, because of their very size, such large pools of funds encounter in selecting their investments would be reflected in the aggregate statistics for all institutions of the same type. Certainly, any unusual characteristics in the stock holdings of the five largest mutual funds would, to an important extent, determine the nature of the stock holdings of the whole mutual-fund industry viewed in aggregate.

Consider one of the large mutual funds at the end of 1954 as an example. This fund held 134 separate common-stock issues at that time. Only eight of these holdings were worth under $1 million, the smallest being about $300,000. All other holdings ranged upward from $1 million to $23 million. In fact, some of the smaller holdings may have been small only because the fund was still in the process of accumulating the issues at the time. But, in any case, here was a single pool of funds which, with only a few exceptions, held at least $1 million of each issue in its common-stock portfolio and a median holding of about $4 million.

For many listed issues the accumulation or the sale at that time of $1 million worth would not have caused too much difficulty. But, obviously, buying or selling that much stock where the issue is in one of the two lowest size categories used in this study (less than $50 million) would have created some difficulties. Even if stocks in these classes had shown above-average rates of turnover in their volume of trading,[13] a major fund would have had to buy or sell at a considerable price disadvantage if the amounts transacted were in line with the rest of its portfolio.

But probably even more important, holding $1 million of a single issue in these size groups would have meant owning a minimum of 2 per cent of a company's outstanding stock. Among the issues in the smallest size class, it would have meant 4 per cent and up. That is, in such a fund a normal size holding of many available common stocks would have amounted to a sizable proportion of the outstanding

13. From 1949 to 1959, the annual turnover ratio of all shares listed (round-lot volume divided by the mean number of shares listed during a year) ranged from 12 to 23 per cent.

issue. Some types of institutions would also have encountered legal restrictions against holding too much of any one company's outstanding common stock.[14]

But why could not these large funds hold only a small proportion of the small issues? Why $1 million worth? Possibly large funds do not wish to put expensive research efforts into a company whose shares can be accumulated only in small amounts. Also, institutional investment managers may feel that very few small issues have the requisite safety and/or future growth potentials to warrant purchase by them of any amount, especially where a strong fiduciary relationship is involved, such as in bank-administered pension funds.

We can conclude, therefore, that the tendency of institutions in the aggregate to concentrate upon large issues (except for the few extremely large ones) to a somewhat greater extent than the average of all other investors may result in part from the concentration in size that exists among institutions themselves and the specific problems and policies of the few very large funds. But this is only a hypothesis, since no organized data are available to prove it. What is needed is a comparison of the nature of their portfolios between large investors and small ones relative to the size structure of issues. In the final analysis, though, such a comparison will probably only show that small institutions as well as large ones prefer large issues, even though some differences in degree may exist.

IV. Summary

1. Diversified institutional investors concentrate a sizable proportion of their common-stock holdings among a relatively few large issues. This is due mainly to the size structure of all outstanding issues.

2. Among the five types of institutions analyzed, the degree of concentration is greatest among bank-administered pension, welfare, and profit-sharing plans and least among investment companies.

3. From 1949 to 1954 the general pattern of these institutional holdings in relation to the size structure of outstanding listed stocks showed little change. Such holdings rose as a per cent of the total outstanding but with no strongly apparent tendency to move up or down the size scale of listed issues.

4. When institutional holdings are related to the total amount out-

14. State or federal government restrictions on the percentage of an outstanding issue that can be held by any one fund exist for life insurance companies, investment companies, and mutual savings banks. However, individual funds among many other types of institutions apply self-imposed limits.

standing of the same issues, they tend to be relatively small among a few extremely large issues and among the 600 or so smallest listed stocks. Some factors which may cause this pattern are the following:

a) The diversification requirements of institutions may prevent them from holding more than minute proportions of the outstanding shares of extremely large issues.

b) Institutions may tend to avoid many small issues altogether because a minimum size holding in their portfolios would be too large a proportion of the outstanding issue in such cases.

c) Concentration in asset size among institutions themselves may cause the data on aggregate holdings to show relatively light investments in small issues.

ERRATUM

In the article by Richard Goode, "Imputed Rent of Owner-occupied Dwellings under the Income Tax," this *Journal*, December, 1960, the headings of the second and third columns of Table 1 (p. 508) were transposed in printing. The second column shows estimated mortgage interest; the third column, property taxes.

THE VALUATION OF PUBLIC UTILITY ENTERPRISES BY THE SECURITIES AND EXCHANGE COMMISSION

CHELCIE C. BOSLAND
Brown University

I. INTRODUCTION

THE VALUATION OF going business enterprises has long been recognized as a complex process in which no specific formula is approved as valid and the range of estimate is likely to be wide. Yet sales of entire business enterprises are quite common in the business world, and somehow the problem gets solved to the satisfaction of buyers and sellers, with such strategic factors as the nature and outlook for the business, the skill of its management, its earnings and dividend record, its asset structure, working-capital position, capitalization, and all the rest somehow receiving mutually acceptable recognition.

However, when we move from actual transactions to situations that call for the determination of "value" or the "fair market value" of a business concern or its outstanding securities, for such purposes as the imposition of income taxes, estate and gift taxes, or for official approval of reorganization plans or the purchase, sale, or merger of concerns in regulated industries, the results are frequently subject to a large measure of controversy. This is particularly true of value determinations made by the federal tax agencies for the imposition of estate and gift taxes, where critics have contended that methods commonly used in the past have been so arbitrary, vague, and variable that the tax results are largely a gamble. Since the advantages of accurate and consistent valuation practices in these areas are so evident, some have suggested as a solution to the problem that the Securities and Exchange Commission, which is experienced in and knowledgeable about the practice of valuation, might well be given the task of making value determinations for all government agencies.

This proposal, of course, raises the question of whether the SEC's own techniques and standards of valuation have in fact proved in practice to be clear, consistent, and accurate in some sense. The purpose of this paper is to provide at least a partial answer to this question by examining in some detail the commission's approach to

valuation in 47 different decisions made between 1942 and 1950, where the sales of entire corporations required SEC approval as "fair and equitable" to all parties.[1] Most of the sales were made to satisfy the divestiture requirements of Section 11 of the Public Utility Holding Company Act of 1935. The business concerns, for the most part, were utility corporations in the electric power, manufactured gas, and retail gas fields, although in a few cases the divestitures involved non-utility companies.

II. Valuation of Public Utility Concerns under the Public Utility Act of 1935

The analysis of the commission's theories of value as applied to the sale of the entire assets or all the securities of a corporation can begin with a simple, uncomplicated case: A holding company, Lone Star Gas Corporation, was required to divest itself of the property or all securities of the Council Bluffs Gas Company to satisfy the simplification requirements (Sec. 11*b*) of the Act of 1935. The latter company owned and operated facilities for the distribution of natural gas in the city and vicinity of Council Bluffs, Iowa. After the voters of the city had defeated a proposal for municipal ownership of the utility, bids from other purchasers were solicited. Only one bona fide bid was received—from an individual who offered $1,325,000 in cash for all the securities of the company, consisting of a $1,000,000 income note bearing interest at 4½ per cent and 13,500 shares of common stock of $100 par value.

In passing upon the reasonableness of the price, the commission noted that the underlying book value of the securities was $2,199,864 (slightly less than $2,350,000 capitalization at par) and that they were carried at $3,350,000 on the books of the parent company, Lone Star. The net property account (after depreciation) was $2,207,115, including a manufactured-gas standby plant of uncertain value. Presumably the property was carried at cost to Council

1. Under the simplification sections of the Public Utility Act of 1935, hundreds of utility and non-utility companies had to be disposed of. Most of this was accomplished in the years 1942–50. The *Sixteenth Annual Report* of the Securities and Exchange Commission indicates that a total of 984 companies had been divested by 1950. Thereafter, the yearly number declined sharply to 38 in 1951, 6 in 1952, 46 in 1953, and 15 in 1954, when required divestitures had almost reached completion. Many of the companies were small, and about two-fifths were non-utility companies. Some individual decisions covered the disposal of a number of companies, some dealt with liquidation or sale of common stock rather than sale of the entire property, and some raised no substantial problems of valuation. The 47 decisions analyzed in this paper are considered representative of the commission's approach to the valuation of entire business concerns. While they emphasize public utilities under the Act of 1935, they are consistent with the broad range of other commission decisions involving valuation problems.

Bluffs, without write-ups, although no complete original cost study had been made.[2]

Turning to the company's earnings,[3] the commission found that the income, before interest on the note, had risen from $74,683 in 1939 to $85,682 in 1942 and was estimated to reach $98,400 in 1943, providing a 3-year average earnings yield of 6.01 per cent on the sale price, or a 7.43 per cent yield if only the estimated earnings for 1943 were considered. These yields (or rates of earnings capitalization) apparently seemed reasonable to the commission, and it approved the transaction after finding that it was the result of arm's-length bargaining between the buyer and the seller.

The relative unimportance of book value, or asset value, here is apparent, the purchase price being only about 60 per cent of book value. The case indicates rather clearly that the commission looked largely to earning power rather than to assets or book values as the proper basis for value determination, even in regulated industries where the connection between asset values (usually at adjusted cost) and permissible earnings is thought to be close. In some cases the commission has approved transactions for the sale of entire utility properties for much less than half of book values, even when the carrying values of the plant have been adjusted downward. Thus, in the sale of the Raleigh Gas Company (a manufactured-gas utility) by Consolidated Electric and Gas Company to an individual purchaser, the cash price of $217,870 (plus minor adjustments) was approved, even though the plant had a net book value of $1,093,106 (based on an appraisal in 1931) and an adjusted net value of $702,443.[4] For this plant the price of $175,000 was to be paid, the remainder of the $217,870 being for net current assets. This rather extraordinarily low price relative to book value did not seem to concern the commission or evoke special comment. It appeared to be justified by current earnings of $22,228 and 5-year average earnings of $16,191, with earnings capitalization rates of 10.20 and 7.43 per cent, respectively.

Similarly, the commission permitted the purchase of all the properties of a Kansas utility (supplying electric and water service) for

2. Lone Star Gas Corporation, Holding Company Act Release No. 4010, December 26, 1942, 12 SEC 583.

3. Unless otherwise noted, earnings figures are after all taxes, including income taxes.

4. Consolidated Electric & Gas Company, The Raleigh Gas Company, Holding Company Act Release No. 4739, December 6, 1943, 14 SEC 861. The adjusted plant value represented the new carrying value on the books of the Raleigh Company, not necessarily adjusted original cost.

only 26 per cent of book value (based on original cost, less reserves).[5] This was a very small company, with gross operating revenues of $34,156 in 1942.

In contrast, it is not difficult to find cases in which the commission has permitted transactions in public utility properties and securities at prices much higher than book values. For example, in May, 1945, Cities Service Power and Light Company was permitted to sell to Dayton Power and Light Company (a subsidiary of Columbia Gas and Electric Corporation) all electric light and power properties located in 12 Ohio counties for a base price of $7,950,000, as compared with a net book value of $4,317,458 (including intangible organization expense of $307,000),[6] making the purchase price about twice net tangible book value. The allocation of earnings to the properties involved indicates a price equal to 26 times 1944 earnings, after taxes, or a capitalization rate of less than 3.8 per cent—certainly a very high price relative to earnings as well as to book value.

It is possible that the commission was uneasy about this and might have found the purchase price excessive. It stated: "As indicated above, the purchaser is paying approximately $3,559,000, or 82%, more than the net book value of the properties (including intangibles) being acquired. It is also clear that the purchase price, when examined in relation to earnings, is close to the upper limit that could be considered reasonable."[7] Nevertheless, approval was granted, partly because the acquisition of the assets by Dayton had been approved by the Public Utilities Commission of Ohio, which gave it a privileged status under Section 9(*b*) of the Act of 1935. The SEC enunciated clearly its inclination to go along with a price that had been arrived at by arms-length bargaining, indicating the possible absence of other conclusive criteria of reasonable value. It stated: "We believe that the selling price of utility assets may ordinarily be left to arms-length bargaining in transactions between non-affiliates, but only if there are sufficiently conservative accounting and financing provisions to prevent the spiraling of prices."[8]

A third possible reason for permitting the transaction at such a high price relative to earnings and book value was the expectation that, under Dayton's operation, substantially larger earnings could

5. Southwestern Public Service Company, Holding Company Act Release No. 4937, March 11, 1944, 15 SEC 529.

6. Cities Service Power & Light Company, Holding Company Act of 1935, Release No. 5809, May 21, 1945, 19 SEC 174.

7. *Ibid.*, p. 3.

8. *Ibid.*, p. 6.

be realized through savings in federal taxes and general expenses, although no estimate was made of such savings.

In another case, involving a purchase price nearly 70 per cent above book value, the commission gave its approval to a sale of two electric utility companies because of an upward trend in earnings and the possibility of additional earnings through economies of operation.[9]

These cases have been cited briefly to indicate the commission's thinking and the wide range of permissible valuations in cases involving the purchases of all the assets or securities of public utility companies. They represent the upper and lower limits of price relative to book values in the cases reviewed and reveal a smaller regard for asset values than might be expected in public utility cases; they also reveal wide variations in price-earnings ratios or rates of capitalization. But perhaps it is easy to overemphasize the importance of a few extreme cases. The commission's attitude toward reasonable valuation would be brought into clearer perspective by a detailed analysis of all the cases, but space limits rule out anything more than a summary of a number of approved prices relative to earnings and book values. This is presented in Tables 1–4. For convenience, the companies are divided according to the type of business. With some exceptions, the order of the decisions is chronological.

Table 1 reveals a very wide acceptable range of prices relative to earnings and to book values for the electric utilities covered, and inspection reveals no consistent tendency for these relationships to vary with size, geographical area, or year of decision.

A similar analysis of fewer companies providing other types of utility service reveals a somewhat smaller range of variation, but still considerable difference in the ratios (Table 2).

The most striking uniformity to be observed in these gas company transactions is that approved sale prices averaged only about half of actual book values, a figure not greatly changed if plant is adjusted to cost. Not one of the companies sold for as much as actual or adjusted book value, and some sold for less than one-fifth of asset values. Possibly this denotes considerable obsolescence due to the advent of natural gas. However, rates of earnings capitalization do not compare unfavorably with electric utilities. Again earnings seem predominant in value determination, and the fact that it required large book values to create those earnings did not substantially alter the rates of capitalization.

A somewhat closer relationship between book values and accept-

9. Republic Service Corporation, Pennsylvania Power & Light Company, Holding Company Act of 1935, Release No. 7749, September 30, 1947, 26 SEC 669.

able prices is found in the natural gas industry, although here again the range is wide, as shown in Table 3.

On the average, approved valuations coincided with book values (both actual and adjusted), although this may have been coincidental. More significant is the fact that individual cases ranged from 60 to 142 per cent of book values. Similarly, the relationship of approved values to earnings showed substantial variation, the highest rates being twice the lowest—a somewhat smaller range than that found for electric utilities but about the same as for manufactured-gas companies.

TABLE 1*

APPROVED PURCHASE PRICES OF ELECTRIC UTILITY COMPANIES RELATIVE TO EARNINGS AND BOOK VALUES

LOCATION OF UTILITY	PURCHASE PRICE ($000)	RATE OF CAPITALIZATION (EARNINGS÷PURCHASE PRICE)		RATIO OF PRICE TO BOOK VALUE	
		Latest Year	4–6-Year Average	Actual	Adjusted to Cost
Louisiana	3,000	0.117	0.070	0.54	0.67
Ohio	1,100	N.a.†	.080‡§	0.76	0.87
Arizona	775	.111	.096	1.18	1.18
Arkansas	3,747	.078	.079	1.00	1.15
Colorado	150	.094	.070	N.a.	0.99
Arizona	155	.025	.050	N.a.	0.94
Kansas	63	.102§	.063§	0.28	0.28
Illinois	840	.072	N.a.	0.88	0.88
West Virginia	428	.094	.059	1.00	1.00
Calif.-Oregon	470	.079	.072	0.73	0.73
Calif.-Oregon	522	.083	.077	1.07	1.07
Virginia	688	.053	.047	0.96	0.96
Virginia	1,936	.067	.059	0.93	0.93
Ohio	7,950	.038	N.a.	1.98	N.a.
Missouri	850	.078	.064	0.82	0.82
Minnesota	625	.094	.075	0.88	0.88
New Mexico	1,206	.094	.082	0.72	1.36
Texas	815	.083§	.048§	1.00	1.00
Wyoming	843	.092	.087	0.72	0.72
N. and S. Dakota	6,521	.073	.070	1.06	1.16
Indiana	624	.078	.069	1.29	N.a.
Pennsylvania	675	0.098	0.082	1.67	1.67
Average		0.080	0.071	0.97	0.96
Median		.079	.070	0.95	0.95
Range		0.025–0.117	0.047–0.096	0.28–1.98	0.28–1.67

* Source (in order): Holding Company Act Release Nos. 4031, 4006, 4129, 4425, 4734, 4734, 4937, 4948, 5504, 5529, 5529, 5731, 5731, 5809, 5894, 6143, 6281, 6320, 6420, 6142, 5282, 7749. Note: some releases involved decisions for more than one company, hence a repetition of release numbers.

† N.a. = Not available.

‡ 3-year average.

§ Before taxes—excluded from the average.

TABLE 2*

APPROVED PURCHASE PRICES OF RETAIL MANUFACTURED-GAS COMPANIES RELATIVE TO EARNINGS AND BOOK VALUES

LOCATION OF UTILITY	PURCHASE PRICE ($000)	RATE OF CAPITALIZATION (EARNINGS÷PURCHASE PRICE)		RATIO OF PRICE TO BOOK VALUE	
		Latest Year	4–6-Year Average	Actual	Adjusted to Cost
North Carolina	218	0.102	0.074	0.20	0.31
Illinois	750	.077	.076	.39	.70
Pennsylvania	200	.089	.102	.68	.68
New York	80	.101	N.a.†	.53	.53
Pennsylvania	250	.067	.095	.88	.88
Pennsylvania	238	.087	.105	.48	.48
Pennsylvania	1,425	.063	.063	.27	.93
Wisconsin	410	.068	.039	.59	.59
Pennsylvania	183	0.115	0.066	0.56	0.56
Average		0.085	0.078	0.51	0.63
Median		.087	.075	.53	.59
Range		0.063–0.115	0.039–0.105	0.20–0.88	0.31–0.93

* Source (in order): Holding Company Act Release Nos. 4739, 4904, 4959, 4959, 5515, 5515, 5573, 6299, 7100. Note: Some releases involved more than one company.

† N.a. = Not available.

TABLE 3*

APPROVED PURCHASE PRICES OF RETAIL NATURAL-GAS COMPANIES RELATIVE TO EARNINGS AND BOOK VALUES

LOCATION OF UTILITY	PURCHASE PRICE ($000)	RATE OF CAPITALIZATION (EARNINGS÷MARKET PRICE)		RATIO OF PRICE TO BOOK VALUE	
		Latest Year	4–6-Year Average	Actual	Adjusted to Cost
Iowa	1,325	0.065	0.060	0.60	0.60
Mississippi	813	.101	.076	0.92	0.92
Missouri	530	.134	.083	0.84	1.14
Kentucky	625	.065	.049	0.90	0.90
Ohio	555	.109	.074	0.76	N.a.
Nebraska	4,325	.089	N.a.†	1.27	1.27
Pennsylvania	1,259	.083	.068	1.00	1.00
Texas	455	.095	.086	1.23	1.23
Minnesota	211	.148	.087	1.42	11.42
Michigan	1,500	0.139	N.a.	1.30	1.30
Average		0.103	0.073	1.02	1.09
Median		.098	.075	0.96	1.14
Range		0.065–0.148	0.049–0.087	0.60–1.42	0.60–1.42

* Source (in order): Holding Company Act Release Nos. 4010, 4595, 4847, 5501, 5612, 5619, 5890, 6485, 6916, 7047.

† N.a. = Not available.

Perhaps one of the most interesting facts is that, on the average, the latest years' earnings of retail natural-gas companies were capitalized at higher rates than were those of the manufactured-gas companies—by two percentage points—despite the presumed superiority of natural gas and the larger size of the natural-gas companies. However, rates of capitalization for average (4–6 years') earnings for the two industries were almost identical.

For the three industries, electricity, manufactured gas, and natural gas, average rates of capitalization of latest earnings tended to center in the area of 8–10 per cent, while approved rates for 4–6-year average earnings varied between 7 and 8 per cent. However, individual cases showed wide variation.[10]

III. Non-Electric and Gas Companies

In addition to passing on the values of properties (or all securities) of electric and gas companies, which are the only classes of utilities subject to the Public Utility Act of 1935, the commission has had to approve transactions under which regulated utility holding companies sought to divest themselves of non-related businesses which Section 11 of the act no longer permitted them to retain. A few decisions were also made under Sections 10 and 12, which require commission approval for the acquisition or sale of any securities or other assets. While the number of transactions covered is not large, they throw some additional light on the commission's approach to the problem of valuation, for these companies generally are quite different from electric and gas companies in their economic nature and outlook. It will be instructive to see whether the commission distinguished them sharply from the two main categories and assigned to them decidedly different capitalization rates because of these differences. The relationships between approved values, earnings, and assets are presented in Table 4.

A brief glance at these cases discloses some differences between the ratios of these companies and those of electric and gas companies and a closer relationship between approved prices and book values. The latter was apparently not the result of design. The high risks in bus transportation called for a high rate of earnings capitalization, but rates in other industries appear low. Here, as elsewhere, there

10. It would be interesting to compare these rates of capitalization with actual market rates for unregulated transactions in utility properties. Unfortunately, no market data are available for sales of entire companies. However, it is of interest to note that the prices of utility common stocks (as measured by Moody's 24-stock average) rose steadily from 12.92 in 1942 to 31.23 in 1950, and rates of earnings capitalization fell from 10.9 to 8.4 per cent, reaching an intermediate low of 6.4 per cent in 1946.

was no attempt to determine actual current market rates of capitalization prevailing for various types of business risk. Instead, there was a strong tendency for the commission to rely on the incentives of buyers and sellers to drive good bargains at arm's length, and it seemed to be satisfied if the result was within very broad and general limits.

The Springfield Transportation Company[11] transaction is of interest in that the purchase price of $950,000 included payment for $400,000 of excess cash and marketable securities not needed in the

TABLE 4*

APPROVED PURCHASE PRICES OF NON-UTILITY COMPANIES RELATIVE TO EARNINGS AND BOOK VALUES

TYPE OF COMPANY†	PURCHASE PRICE ($000)	RATE OF CAPITALIZATION (EARNINGS÷MARKET PRICE)		RATIO OF PRICE TO BOOK VALUE (ACTUAL)
		Latest Year	4–6-Year Average	
Bus transp. (Springfield, Ill.)	950	0.137	0.098	1.25
Water (Kingfisher, Okla.)	70	.123‡	.149‡	0.90
Lignite coal (N. Dakota)	547	.075	.071	1.00
Coke and Gas (Wisconsin)	4,354	.071	0.105	1.00
Coal terminal (Mass.)	1,700	N.a.§	N.a.§	0.98
Mining (vanadium, uranium) (Colorado)	200	0.047	(def.)	0.99
Average		0.083	0.091	1.02
Median		.073	.098	1.00
Range		0.047–0.137	0.071–0.105	0.90–1.25

* Source (in order): Holding Company Act Release Nos. 4240, 5962, 6142, 7023, 8840, 5613.
† Other than electric and gas companies.
‡ Before depreciation and income tax. Not included in average of the six companies.
§ N.a. = Not available.

business, leaving $550,000 to cover plant (with an adjusted book value of $255,000) and $264,000 of needed working capital. The company earned over $130,000 in 1942, and an average of $91,000 for the 4-year period 1939–42. Thus, if excess cash is deducted, the purchase price was only 4.2 times 1942 earnings, indicating a rate of capitalization of nearly 24 per cent. Perhaps this was warranted by the obvious risks and erratic earnings of a company engaged in urban transportation. Net earnings fell gradually from $86,500 in 1939 to $72,900 in 1941. This was followed by a sharp upturn to $130,400 in 1942, caused partly by war conditions and partly by the

11. The Commonwealth and Southern Corporation and its subsidiary companies, Holding Company Act. Release No. 4240, April 14, 1943, 13 SEC 105.

improvement incident to the substitution of buses for streetcars. Testimony indicated that the company's prospects under more normal conditions were good. In its decision, the commission stressed the fact that two large concerns were bidding for the company and had offered no more than $950,000. The ratio of price to book value was mentioned, but not emphasized.

In the sale of the small Oklahoma water utility, the commission noted that the price was arrived at by arms-length bargaining; that it was somewhat less than book value; that it was 8.14 times net operating income *before depreciation and income taxes* in 1944 and 6.76 times 5-year average net operating income (same basis) and 8.90 times estimated pro-forma gross income. It simply stated that this was "not unreasonable."[12] One cannot help wondering whether other ratios would not have been equally acceptable!

The approval of the sale of a North Dakota lignite coal-mining company on a 7 per cent earnings capitalization basis would seem out of line for a depressed industry, but the commission found that past earnings were understated because of mine fires. The price capitalized expected normal earnings at the rate of about 9 per cent.

In the sale of a gas and coke company (Milwaukee Solvay Company) the commission gave substantial weight to potential liquidation value in approving a price which capitalized average past earnings at 10.5 per cent, although those earnings probably could not be realized in the future.[13]

In another case, the commission permitted the New England Electric System to buy, for $1,700,000 cash, from various subsidiaries, all the securities ($1,200,000 of notes and $500,000 par value of stock) of a non-utility coal terminal, owning real estate and coal-handling and storage facilities. The price was slightly above book value of $1,662,439 and depreciated cost of $1,537,032. Appraisers had placed a fair value of $1,600,000 on the property. This is one of the few cases of the approval of the sale of an entire corporate entity in which earnings, past, present, or future, were not even mentioned in the decision, possibly because the concern's operations were so closely tied in with the entire utility system using its facilities that earnings were more or less meaningless. However, the absence of any reference to either past or potential earning power as a check on appraised value of the property was the more noteworthy because

12. Southern Union Gas Company *et al.*, Holding Company Act of 1935, Release No. 5962, July 31, 1945, 20 SEC 190.

13. United Light and Power Co. *et al.*, Holding Company Act of 1935, Release No. 7020, December 2, 1946, 24 SEC 346.

this was a transaction between a holding company and its subsidiaries rather than one at arm's length.[14] This is also one of the few cases in which approved value corresponded with the par value of the company's outstanding securities.

The sale of a vanadium and uranium mining company for $200,000, was approved by the commission in a decision that gave no clue to its standards of value.[15]

IV. Summary and Conclusions

This highly condensed survey of SEC decisions determining appropriate valuations for the sale of 47 entire companies (of which 41 were in the electric power and gas industries) reveals no very specific principle or principles of business valuation. The decisions evidence a strong predilection on the part of the commission to attach basic importance to earnings history and to earnings trends and prospects. In some cases, modest weight was given to the physical properties adjusted to a cost basis. Little weight seems to have been assigned to book values as such. Only rarely is there any indication that such factors as size, cash position, current asset ratios, capital structures, or dividend policies have had an appreciable bearing on the value of a corporate enterprise as a whole. The quality of management was seldom specifically mentioned.

It appears that the commission conceived its function to be only a veto of transactions that were patently out of line. The laws themselves are couched in terms of general reasonableness rather than a meticulous determination of precise values in each case. Under such laws approximations may have met minimum requirements, but few usable standards are observable.

The more specific conclusions that emerge from this survey of representative decisions, are the following:

1. Considerable emphasis was placed on the conditions surrounding the sale. Transaction prices worked out by independent buyers and sellers, seeking their individual advantage, were frequently accepted as a measure of fair value.

2. In arriving at approved values as "fair and equitable," the earning capacity of the concern was by far the predominant factor, usually far outweighing all others, including assets or book value. The commission in one case said:

14. New England Electric System *et al.*, Holding Company Act of 1935, Release No. 8840, February 9, 1949 (not reported).

15. North Continent Utilities Corporation and Subsidiary Companies, Holding Company Act of 1935, Release No. 5613, February 19, 1945, 18 SEC 312.

> While the book value of the stock is approximately $120 a share, as compared with the purchase of $20 a share, little weight can be given to the book value of Transit stock in considering the reasonableness of the purposed purchase price. We have frequently pointed out that ordinarily the primary test for valuing a security is the company's ability to earn on the capital invested in the enterprise.[16]

This basic principle, with few exceptions, runs through all the commission's determinations of value, whether of entire business enterprise, whole stock equities, or majority or minority stock interests.[17]

3. The relationships between earnings and value (rates of capitalization of earnings) were highly variable, even as between companies in the same industry.

4. Both the average and the range of approved rates of earnings capitalization showed no great difference as between electric light and power, manufactured-gas, and natural-gas companies.

5. The commission did not develop any systematic or consistent method for determining proper relationships between earnings and values. It accepted rates of capitalization varying from $2\frac{1}{2}$ to 12 per cent for electric utilities as reasonable.

6. When there were decided differences between past, present, and future earnings, the commission seemed to place least emphasis on the past, although nowhere did it apply any specific weights to the different earning periods.

7. There was no observable relationship between the size of the concern and the rate of earnings capitalization; values based on high and low rates were approved for large and small companies, without distinction. Seldom was the matter of size mentioned.

8. Trends of earnings were considered important, and the commission was careful to discount earnings changes arising from temporary causes such as wartime conditions.

9. In isolated cases, miscellaneous factors, such as excess liquid assets, potential liquidation value, the appraised value of physical property, or gross revenues, received special consideration in the sale of an entire company.

The pragmatic and flexible approach of the commission, however

16. The North American Company, Public Utility Act of 1935, Release No. 9287, August 25, 1949, 29 SEC 847.

17. Further studies of commission decisions by the author, involving the valuation of stock interests (entire, majority, or minorty), under the same and other laws, reveal some interesting variations, but no persistent departure from the earnings basis of value. These variations took the form of emphasis on dividend record, capital-structure, market quotation, cash position, control, marketability, liquidation value, going-concern value, or book value in specific instances. But these further studies tend to confirm the general applicability of the valuation principles and procedures followed by the commission in the divestiture cases involving entire companies.

much lacking in precision of analysis, appeared to satisfy the indefinite requirement of "reasonableness." In the words of the commission:

> In passing on that question it is not our function to determine dogmatically the precisely "right" or "proper" price and to disapprove any price that deviates from that determination, regardless of the degree of deviation. The pricing of a common stock, particularly one which has had no previous market history, is not an exact science. The fixing of an appropriate price involves some latitude of judgment as to the factors that may affect the market value of the security and the weight to be assigned to each of these factors. If the price has been arrived at by an appropriate process which makes adequate provision for the maintenance of competitive conditions and the application of considered judgment to the data relevant to the factors likely to affect the price, and if the price so arrived at falls within reasonable range of a price that we might consider the precisely "right" price, we are not called upon to reject it merely because it might appear to us to fall on either the high or low side of that range.[18]

The student of valuation problems will find in these decisions no important new insights or even any refinements in the accepted methods or principles of valuation. Nor will he find the degree of thoroughness that he might expect in cases where errors in valuation could be costly. But he will find an open-mindedness, an evident desire to arrive at equitable results, and an absence of arbitrary and dogmatic valuation formulas that could yield worse results than the commission's inexact, but flexible, approach. Moreover, he will find here a reaffirmation of the basic importance of earning power as the source and measure of the value of established and continuing business enterprises.

18. Columbia Gas and Electric Corp., Dayton Power and Light Company, Holding Company Act of 1935, Release No. 6714, June 19, 1946 (p. 8), 23 SEC 138.

ON THE RELATIVE MERITS OF RESERVE-RATIO CHANGES AND OPEN-MARKET OPERATIONS

JOHN H. KAREKEN
University of Minnesota

FEDERAL RESERVE OFFICIALS, when trying to decide whether to change legal reserve ratios or to engage in open-market operations, do not simply get together and toss a coin. Instead they try to figure out which of these two ways of regulating bank lending best suits the circumstances of the moment; for they, like most economists, believe that the economic effects produced by a change in reserve ratios differ significantly from those produced by an equivalent open-market operation.[1] Nor can there be much doubt that System officials are right, at least in principle, in relying on judgment rather than on chance; since these approaches do differ in their effects, it does matter which one is used. What can be doubted, however, is that System officials have put their (collective) finger on the real differences between the reserve-ratio and open-market approaches. Their reasons for sometimes using one approach and sometimes the other do not ring true. Specifically, official reasons for making day-to-day adjustments in member banks' reserve positions by means of open-market sales and purchases will not stand up under close scrutiny (see Sec. I); and the same can be said of the official defense of the post-Accord record on reserve ratios (see Sec. II).[2]

But let it be understood from the outset that the argument being made here is not that Federal Reserve officials have consistently erred in making their decisions about when to change reserve ratios and when to deal in Treasury securities. Rather, it is that if these officials have been right, they have been right for the wrong reasons; either this, or they have not been making their real reasons known.

1. An open-market operation and a change in legal reserve ratios are equivalent if they produce the same change in the ability of member banks to hold earning assets. (Other definitions of equivalence are possible.)

2. The essential feature of this record is that legal reserve ratios have been lowered several times but never raised; they were lowered in July, 1953, June–July, 1954, February–April, 1958, and September, 1960. Also, in December, 1959 and again in 1960 the Federal Reserve increased the proportion of total vault cash which member banks could (and can) use in meeting reserve requirements; possibly these increases should be considered as reductions in legal reserve ratios.

I. Day-to-Day Reserve Adjustments

It is an operating principle of the Federal Reserve that day-to-day changes in autonomous variables affecting member banks' reserves (e.g., float) should be offset by changes in System holdings of Treasury securities. To change legal reserve ratios, it is held, is to produce a remedy all out of proportion to the problem; most of the time, variables affecting reserves change only slightly in value from day to day, whereas "even *small* changes in reserve ratios, say of one or two percentage points, result in large changes in available reserves and liquidity positions of member banks."[3] In words much favored by authors of money and banking texts, the effects of changes in legal reserve ratios are "too blunt and powerful."

But, granted that even the traditionally used one-half percentage point changes in reserve ratios have considerably influenced member banks' ability to lend, this still leaves unanswered the quite pertinent question: Why cannot reserve ratios be changed by, say, one-tenth of one percentage point or by whatever fraction will produce the desired amount of excess reserves, however small? Merely to assert that "administrative" or "technical" difficulties stand in the way is not sufficient. What these difficulties could be is not easy for an outsider to determine.

There is another point which has been made by Federal Reserve officials in defense of the preference for making day-to-day reserve adjustments by means of open-market operations. Allegedly, member banks would find it extremely difficult, if not impossible, to adjust to frequent small changes in legal reserve ratios. ("Very small fractional changes at relatively frequent intervals . . . would create very difficult problems of adjustment for member banks and would almost certainly be disruptive of the smooth flow of credit in the market.")[4] Again, though, why this should be so is not clear. Individual banks, even when operating in a world of unchanging reserve ratios, nevertheless have to deal with the possibility of deposit fluctuations. To introduce the possibility of small frequent changes in reserve ratios, however, is like increasing the dispersion of possible deposit fluctuations. This being so, then member banks, if they can manage when reserve ratios are fixed, can also manage when they

3. Board of Governors of the Federal Reserve System, *The Federal Reserve System: Purposes and Functions* (Washington, D.C., 1954), p. 52 (Emphasis added.)

4. U.S. Congress, Joint Economic Committee, *Employment, Growth and Price Levels*, Part 6A: *The Governments Management of Its Monetary, Fiscal, and Debt Operations, Hearings* (86th Cong., 1st sess., 1959), p. 1463.

change frequently. There would thus seem to be no reason to expect an interruption of the "smooth flow of credit."[5]

If the emphasis on the disruptive effects of frequent changes in legal reserve ratios is considerably overdone, so is the official argument that stresses the difference between the way in which a change in reserve ratios affects individual banks and the way in which a change in System holdings of Treasury securities affects them. ". . . A change in reserve requirements," Federal Reserve officials have observed, "affects every member bank directly and immediately with equal force, irrespective of differing individual situations or conditions, whereas the effects of an open market operation are felt individually and gradually by the member banks through the operation of market forces."[6] What is the implication? System officials have never said explicitly, but presumably it is that changes in System holdings of Treasury securities, in contrast with changes in reserve ratios, eliminate transient excesses and stringencies in the money market without disrupting the whole banking system.[7] But whatever the (desired) implication is, it is based on a difference that is largely without substance.

Admittedly, when reserve ratios are altered, excess reserves of all member banks change by the same amount relatively, so that the initial impact is evenly distributed over the banking system. In contrast, when the System's portfolio of Treasury securities is altered, the initial impact is felt by the so-called money-market banks—by those banks which, as a matter of course, supply securities financing. But when the Federal Reserve engages in open-market operations, it must, in a manner of speaking, trust the market mechanism to carry out its intentions; if, for example, an official purchase of Treasury securities is made to offset, say, a temporary reserve stringency, it still remains for the market mechanism to get these funds into the hands of "needy" bankers. And yet, if the market mechanism, particularly the federal funds market, serves this purpose when the System buys Treasury securities, why should it not do the same when reserve ratios are lowered? Of course, some bankers may be tempted by a reduction in reserve ratios to expand their loan portfolios; others, though, will surely want to put their newly acquired

5. Individual banks may be worse off when reserve ratios change frequently, for they may be induced to hold more excess reserves. If necessary, however, banks could easily be compensated; for example, the long-term average reserve ratio could be reduced.

6. *Hearings*, p. 1463.

7. Suggestive of this implication is the following remark: "In general, the most extended banks feel the additional pressure [of an official open-market sale] most." (*ibid.*).

reserves into the money market; indeed, this is the more likely response, assuming that bankers view the new reserve ratios as impermanent, as, in fact, they should.

The moral of the story is clear: if the analysis of the two approaches is carried beyond the initial impact stage, as it should be, there turns out to be little difference between them. (To deny this is to raise serious question about the wisdom of using open-market operations to adjust reserve positions elsewhere than in New York and Chicago.) Nor should the possibility of an even greater similarity in the future be ignored. Currently, some banks are undoubtedly not practiced in the art of money-market operations, so that reserves supplied them on a temporary basis probably would not get into "circulation" immediately. Were reserve ratios to be changed frequently, however, as a means of offsetting short-run influences on total bank reserves, many more banks would find it worthwhile to learn the tricks of the trade and take a more active role in the money market.[8]

There is a final defense of the open-market approach which must now be considered. It is heard less often than those already reviewed, perhaps because the Federal Reserve Bank of New York, which favors it, speaks out less often than the Board of Governors, but it is not much more convincing. Briefly, it is that the open-market approach, besides being a way of adjusting bank reserves, is also a way of gathering information about money-market conditions and so about the need for reserve adjustments.[9] In this latter respect, then, the open-market approach differs from the reserve-ratio approach. Also, the System, when willing and able to trade in Treasury securities, is in a position to keep its market informants (dealers in Treasury securities) honest.

There are ways other than by actually dealing in the open-market, however, of keeping informed about money-market conditions. System officials can always keep a watchful eye on the federal funds market. True enough, not all member banks participate in this market, so day-to-day changes in reserve positions may not be fully reflected in the federal funds rate. But banks unfamiliar with the federal funds market are familiar with the discount windows of their regional Reserve banks. And surely it is neither expensive nor time-

8. This suggests that if allowance is made for a transition period, what has to be given up in exchange for the advantages associated with more aggressive use of variable reserve ratios is less than appears at first glance. It also suggests that more aggressive use of variable reserve ratios, even if not advantageous *per se*, may nevertheless be worthwhile; a better-functioning money market is thereby promoted.

9. Robert Roosa, in his *Federal Reserve Operations in the Money and Government Securities Markets* (New York: Federal Reserve Bank of New York, 1956), talks of getting the "feel" of the market (see esp. pp. 76–79).

consuming to collect information about member-bank borrowing. Nor is it apparent why the System, if it does not trade frequently in Treasury securities, will lose effective (reliable) contact with the money market. Is there really any good reason why informants (market participants) should give inaccurate information to the Federal Reserve? If the answer is "No," then System officials can, as it were, get the information they need simply by asking.

In sum, the usual arguments for prefering the open-market to the reserve-ratio approach for making day-to-day adjustments in bank reserves do not seem convincing.

II. Cyclical-secular Reserve Adjustments

Since March, 1951, legal reserve ratios, though never increased, have been lowered on four different occasions; at present they are not so very different from what they were following the initial increases in mid-1936, although, of course, they are still considerably above what they were before the Federal Reserve first exercised the authority granted it under the Banking Act of 1935. But this latter fact has not tempered the criticism—of which there has been a good deal, particularly in Congress—of those who object to the post-Accord trend of reserve ratios. The question put to Federal Reserve officials by their critics is the obvious one: Why is it that these ratios can be reduced during periods of economic contraction but not increased during periods of economic expansion?

There is a reasonable answer for this question. It makes a difference, in terms of member banks' earnings and Treasury interest costs, whether the System engages in open-market operations or varies reserve ratios.[10] Which approach favors bank earnings relatively and which the Treasury depends on whether bank reserves are to be reduced or expanded. If reserves are reduced, then bank earnings will be larger relatively if the open-market approach is employed; and Treasury interest costs will be higher than they would be, had reserve ratios been increased. If reserves are increased (the more realistic possibility), then supplying reserves by means of open-market operations rather than by means of reductions in reserve ratios decreases relatively both bank earnings and Treasury (net) interest costs. The reasons are apparent. First, the Federal Reserve is subject to a higher "tax rate" than are private economic units, so that a transfer of Treasury securities to the System reduces

10. If the total of excess reserves supplied by the System always sums to zero over short periods of time, then which approach is used to the exclusion of the other is of no consequence. Bank earnings and Treasury interest costs will be affected by System strategy, however, if neither approach is used to the exclusion of the other, even if excess reserves supplied are zero for each short period of time.

net interest payments by the Treasury. Second, if reserves are supplied by such a transfer of securities, the mandatory ratio of earning assets to total assets will be higher than otherwise it would be.[11]

Of course, it is easier to note this difference than it is to figure out its significance for System behavior.[12] What member banks' earnings and profits should be is not easily decided; the competitive position of member banks can be used as a basis for discussion, as can the adequacy of their capital positions, but debates along these lines have so far proved inconclusive. Here, however, the important point is that Federal Reserve officials, in defending their post-Accord record on reserve ratios, have not seized upon the bank earnings argument. Instead they have chosen to rest their case on an apparent asymmetry in the responses of the economy to increases and decreases in reserve ratios—an asymmetry which, if valid, makes the post-Accord record appear quite acceptable and understandable but which, in fact, does not appear to be valid.

During periods of economic expansion, System officials have argued, increases in reserve ratios cause severe and undesirable downward pressure on Treasury securities prices, partly because banks have to sell securities to gain reserves[13] and partly because non-bank investors, anticipating a fall in prices, put off buying. Presumably, then, downward pressure on prices during periods of economic expansion is somehow less desirable than upward pressure during periods of contraction; otherwise this argument is hardly a defense of reductions in reserve ratios unmatched by increases. One wonders, though, reviewing developments of 1957–58, whether this is really so. These developments suggest that reductions in reserve ratios, if not initially offset by official open-market sales, carry the potential for "speculative" excesses—which, whether rightly or wrongly, worry a good many people. But, obviously, open-market operations can be used

11. For a rough calculation of the quantitative significance of the difference between these approaches discussed in this paragraph, see *Hearings*, pp. 1252–55.

12. There is another difference between the reserve-ratio and open-market approaches which should be mentioned, although its relevance in the present context and its significance for System behavior can be questioned. Whether a reserve ratio or the System's portfolio of Treasury securities is changed makes a difference for the structure of interest rates. The ability of member banks to lend is changed when reserve ratios are changed, but there is no corresponding change in the stock outstanding (that is, in the private sector) of any particular type of Treasury security. Changes in relative interest rates which follow on a change in reserve ratios are therefore an expression of bank investment preferences alone. Open-market operations, however, necessarily result in a new ratio of Treasury securities to total debt outstanding and in new ratios of some particular type of Treasury security to total Treasury securities and total debt outstanding. Thus, under the open-market approach, subsequent changes in the interest-rate structure reflect not only lenders' preferences but also changes in the stocks of securities outstanding as well.

13. In the aggregate, to reduce deposit liabilities, unless the System happens to be buying for its own portfolio (*Hearings*, pp. 1463–64).

to lessen the impact of variations in reserve ratios, and it is this point that considerably diminishes the force of the argument of Federal Reserve officials. Neither does it do any good to argue in rebuttal that the same effect got from the use of reserve-ratio changes and open-market operations can be got from the latter alone; this ignores the possibility that one may want to gain an advantage associated with, say, an increase in reserve ratios.

System officials have also argued that reserves generated by a reduction in reserve ratios, besides being distributed immediately over the entire banking system, are viewed by bankers as more permanent than reserves gained through favorable clearing balances (which is where effects of official open-market purchases show themselves).[14] And, being viewed as more permanent, these reserves are put to work directly and at once throughout the whole economy. Economic activity is thus stimulated more quickly.

This observation about bankers' responses is undoubtedly accurate; with the actual history of reserve-ratio changes to go by, bankers would be foolish to take a different view of reserves gained in this manner. But, again, it is hard to see why this observation is an argument in defense of the post-Accord record, which shows decreases in reserve ratios but no increases. Why should there be an asymmetry in bankers' responses? Are not bankers likely to view a loss of reserves due to an increase in reserve ratios, even if initially offset by System purchases of Treasury securities, as more permanent than clearing balances losses? This is surely a powerful argument in favor of cyclical increases in reserve ratios, for it suggests that there is an important "announcement effect" associated with such increases. (Bankers will immediately take steps to bolster their reserve positions, even though they do not—because of an accompanying temporary increase in the System's portfolio—feel the pinch right away.) This is of no small consequence, particularly since the System appears to have had some difficulty in making its influence felt quickly enough during periods of rapid economic recovery.

The arguments advanced by Federal Reserve officials in defense of the way they have managed reserve ratios in the post-Accord period thus do not appear adequate to the task. The first, concerning the relationship between reserve-ratio changes and the behavior of Treasury securities prices, is actually an argument in favor of non-variable reserve ratios or of smaller changes in these ratios than have been typical; it does not support the view that reserve ratios can be decreased in "normal" or non-emergency situations but not increased. The second argument, concerning the response of bank-

14. *Ibid.*, pp. 1464–65.

ers to changes in reserve ratios, suggests that these ratios should vary cyclically, which again is not what was intended.[15]

III. Conclusion

Federal Reserves analyses of the issues of monetary policy are characteristically of high intellectual quality. This is why the weaknesses in its opinions about the reserve-ratio and open-market approaches are so surprising. One can but wonder whether the official reasons for sometimes using one approach and sometimes using the other are not just a disguise. Perhaps the Federal Reserve's general preference for the open-market approach and its management of reserve ratios in the post-Accord period are to be explained by a considerable (and perhaps healthy) respect for the realities of politics, for the idea that the System can govern and so discharge its responsibilities only so long as it does not unduly antagonize too many member banks.

It is interesting that Federal Reserve officials should emphasize so much the difference between the ways in which the reserve-ratio and open-market approaches affect individual banks—especially since, from the narrowly economic point of view, this difference is largely without substance. From the broader viewpoint of political economy, however, this difference may be very real. To engage in open-market operations is to hide the harsh hand of regulation in the "impersonal" workings of market forces; seemingly, individual banks are not controlled. But to use the reserve-ratio approach is to leave this hand completely exposed and, hence, to run greater political risks.

And what of the successive reductions in legal reserve ratios? Assuming that member banks' earnings have (or had) to be increased, this post-Accord trend makes sense. Perhaps, then, it is to be explained by a need to guarantee that member banks do not fare badly in the special position, as subjects of Federal Reserve control, in which they have been placed. No doubt System officials are under continuous pressure to help improve bank earnings; although many years have passed, bankers cannot have forgotten what reserve requirements were during the period 1914–35, before the Banking Act of 1935 was passed and before a wave of special circumstances carried them to much higher levels.

Of course, these explanations of mine may be dead wrong. But if they are, then still before us is the problem of satisfactorily accounting for Federal Reserve preferences and actions.

15. Perhaps it is possible to defend the post-Accord record of reserve-ratio changes by arguing that general economic welfare is better served by a larger credit multiplier. This possibility is not considered here.

SMALL BUSINESS AND TIGHT MONEY

SEYMOUR BLANK*
Miami, Florida

BY LATE 1957 a number of economists had apparently come to feel that the Federal Reserve's restraint on the growth of aggregate borrowing during the 1955–57 growth in aggregate expenditures had fallen especially hard on small businesses.[1] In general, two somewhat different explanations have been given to account for this differential impact. One is that the rising interest rates that resulted from credit restraint had a more inhibiting effect on the borrowing of small businesses than on the borrowing of large businesses.[2] The other is that many commercial banks did not try to reduce shortages by raising interest rates so much as by tightening other credit terms—that is, by "credit rationing"—and that the terms they chose to tighten—net worth, age, etc.—necessarily hurt small more than large businesses.[3]

The only systematic attempt to verify the hypothesis that small businesses have been hit harder by tight money—through the interest-rate effect or through "credit rationing"—than large businesses is that made by the Federal Reserve System for the Congressional Committees on Banking and Currency and on Small Businesses.[4] In general, the Federal Reserve found that borrowing by large businesses increased much more during the 1955–57 period than did bor-

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1. For example, Professor Galbraith (in "Market Structure and Stabilization Policy," *Review of Economics and Statistics*, May, 1957, p. 133) asserted that "there is a strong probability that in the past couple of years the effect of monetary policy has been to ration credit from all sources away from smaller firms in the competitive sector and to large firms in the oligopolistic sector." Allan Sproul (*Commercial and Financial Chronicle*, May 31, 1956, p. 35) commented along these lines: "I suspect that the impact of credit restraint is greater on 'small' business than on big business." Cf. also Arthur F. Burns, *Prosperity without Inflation* (New York: Fordham University Press, 1958).

2. Cf., for example, John Galbraith, *The Affluent Society* (Boston: Houghton Mifflin, 1958), pp. 235–36.

3. For a clear definition and discussion by Professor Samuelson of "credit rationing," cf. U.S. Congress, Joint Committee on the Economic Report, Subcommittee on General Credit Control and Debt Management, *Hearings: Monetary Policy and Management of the Public Debt* (82d Cong., 2d sess. [1952]), pp. 697–98.

4. U.S. Congress, *Financing Small Business: Report to the Committees on Banking and Currency and the Select Committees on Small Business* (85th Cong., 2d sess. [1958]); cf. also U.S. Congress, House, Select Committee on Small Business, *Hearings: Problems of Small-Business Financing* (85th Cong., 1st sess. [1957]).

rowing by small businesses but that this was due to a relatively greater increase in the demand for funds on the part of large businesses; that interest rates on loans to small businesses apparently rose relatively less than those to large businesses during this period; and that there was no significant volume of "credit rationing" against small businesses.[5] The issue is obviously not closed, though, especially the question of the extent to which "credit rationing" occurs and the extent to which its impact is heaviest on small businesses. Some of the evidence introduced in the Federal Reserve study on this "credit-rationing" hypothesis is, at best, ambiguous, and some offers rather strong support for it.[6]

As a contribution to the discussion of the "credit-rationing" question, I present in this paper the results of a survey which, I think, supports the position that commercial banks did not tend to ration funds during the 1955–57 upturn in such a way as to discriminate against small businesses or to cut small businesses off from an important source of funds to them. The survey also suggests what perhaps should be fairly self-evident: that the opinions of small businessmen themselves can hardly be relied on as evidence of what, in fact, commercial banks in the aggregate do.

I

Questionnaires were submitted to 4,986 manufacturing businesses in the Sixth Federal Reserve District. These businesses had been selected by drawing every fourth name on the alphabetical list of the state directories of manufacturers.[7] Before drawing every fourth name from the state directories, subsidiaries of large national firms such as General Motors, DuPont, United States Steel, etc., and firms with headquarters out of the Sixth District were deleted because it seemed probable that these concerns would not seek bank credit in the Sixth District. Though exclusion of some large firms may bias this study to some degree, the bias might be less than that which would have been present if these firms had been included in the sample. Of the 4,986 questionnaires mailed, 4,763 reached the

5. For a convenient summary of the Federal Reserve findings, cf. Edwin B. George and Robert J. Landry, "The Federal Reserve Board Report on Small-Business Financing," *Journal of Business,* XXXII (July, 1959), 214–16.

6. For example the fact that interest rates on loans to small businesses apparently rose less than those to large businesses can be used in support of the "credit-rationing" thesis. The Standard Factors, Inc., evidence (U.S. Congress, House, Select Committee on Small Business, *op. cit.,* p. 44) that withdrawals of credit lines between March, 1955, and March, 1956, were confined to smaller firms obviously offers backing to the "credit-rationing" thesis.

7. Mississippi does not appear in the analysis because there was no Mississippi directory available.

addressees. There were 577 responses, for a percentage response of approximately 12 per cent.[8]

The respondents were asked to provide information about the size of their assets, net worth, and the number of their employees. However, too few firms supplied information about their assets and net worth to permit systematic classification on these bases. But 511 of the 577 respondents indicated the number of their employees. This information is shown in Table 1. Since only 20 of the respondents employed over 250 employees, it would appear that nearly all the respondents could be classified as small business.[9]

The responses of these 577 firms are shown in Table 2. The first column lists the number of firms responding to the particular question, and the second column indicates the percentage of the 577

TABLE 1

SIZE OF RESPONDENTS BY NUMBER OF EMPLOYEES

No. of Employees	No. of Firms	No. of Employees	No. of Firms	No. of Employees	No. of Firms
1– 5	98	71–100	27	701– 800	0
6–10	70	101–200	42	801– 900	1
11–15	60	201–250	7	901–1,000	0
16–20	43	251–400	5	1,001–1,250	2
21–25	41	401–500	5	1,251–1,500	1
26–40	54	501–600	2	1,501–2,000	1
41–70	44	601–700	1	Over 5,000	2

respondents who answered the particular question. The columns under "Affirmative Response," "Negative Response," and "Neutral Response"[10] indicate the percentage response in these three cate-

8. The questionnaire was sent by first-class mail but was not directed to any particular person or company officer. Addressed envelopes were inclosed for the return of answers and return postage was guaranteed. A letter stressing the importance of the project was sent with each questionnaire. This letter was signed personally. No directions for filling out the questionnaire, except those on the questionnaire, were supplied. The sample is probably biased in the direction of returns from (*a*) the larger firms answerng the questionnaire and (*b*) firms with a special interest in replying, i.e., those affected by monetary stringency. To some extent, these factors are offsetting.

9. The Small Business Administration defines a manufacturing firm as small if it employs 250 or fewer persons, and large if it employs more than 1,000 persons. A firm may be considered either small or large if it employs more than 250 persons but not more than 1,000 persons, depending on the employment size standard which the Small Business Administration has developed for its particular industry (Small Business Administration, *SBA Business Loans* [July, 1956], p. 1). The distribution by size of the firms classified in Table 1 is quite similar to this same distribution for the economy as a whole (see U.S. Department of Commerce, *Survey of Current Business*, May, 1954, p. 23).

10. All respondents who did not specifically answer affirmatively or negatively to the particular question posed were listed under the "Neutral Response" category.

gories to the particular question. Every respondent fell into one of the three classes.

Question 1 indicates that over half the respondents seem to feel that small business firms have special difficulty, or at least had special difficulty in 1957, in obtaining bank financing. And question 4 indicates that about two-thirds of the respondents held the opinion in 1957 that tight money falls harder on small rather than large businesses.

However, questions 2 and 3 show that a considerable majority of

TABLE 2

TABULATION OF 577 RESPONSES TO QUESTIONNAIRE SUBMITTED TO 4,986 MANUFACTURING BUSINESSES IN THE SIXTH FEDERAL RESERVE DISTRICT IN SEPTEMBER, 1957

QUESTION	RESPONDENTS ANSWERING THIS QUESTION		AFFIRMATIVE RESPONSE (PER CENT)	NEGATIVE RESPONSE (PER CENT)	NEUTRAL RESPONSE (PER CENT)
	No.	Per Cent			
PART I					
1. Have you observed that small business firms have special difficulty in obtaining loans from banks?	526	91.1	53.2	46.7	.....
2. Do you believe that small business firms are able to obtain:					
a) Adequate short-term credit (up to 1 year)?	503	87.1	65.2	34.7	.....
b) Adequate long-term credit (over 1 year)?	474	82.1	27.8	72.1	.....
3. Is short-term credit the greater problem?	514	89.0	5.6	58.1	36.1
4. Is the impact of tight money greater on small businesses than on large businesses, assuming that each has equal credit merit?	494	85.6	65.7	3.6	30.5
PART II					
1. Indicate if your firm has not attempted to borrow from any bank within the past 5 years	102	17.8	100.0	.....	.....
2. Was your firm refused a bank loan at any time within the past 5 years?	471	81.6	22.7	77.2	.....
3. Indicate if your firm has had a request for a bank loan *reduced* but not denied at any time within the past 5 years	71	12.3	100.0	.....	.....
4. Indicate if your firm has tried to borrow from government or private sources *other* than banks at any time within the past 5 years	120	20.7	100.0	.....	.....
5. Was your firm refused by non-bank lenders at any time within the past 5 years?*	120	20.7	25.8	74.1	.....

* The respondents to question 5 were the same as those to question 4.

those answering felt that small business firms could find adequate short-term funds at the time and that the real financing problem involved long-term funds. Further, as questions 1 and 2 of Part II show, of the 471 firms that actually tried to borrow—short-term and/or long-term—from banks between 1953 and 1957, only 107 (23 per cent) were apparently refused. (Note question 3 of Part II, though, which shows that an additional 12 per cent were able to borrow but had their loan requests trimmed.)

Question 4 and 5 of Part II indicate that 20 per cent of the 526 respondents also tried to borrow—again, short-term and/or long term—from non-bank sources during the five-year period.[11] (Unfortunately, it is not known which of these firms represented businesses that had been turned down by banks and which represented businesses that had not been refused.) About 22 per cent of these firms report that they had their requests refused by these non-bank sources. This is the same refusal percentage as in the case of bank-loan applicants.

II

The question now is whether the fact that 107 firms, of the 471 that applied to commercial banks for short- and/or long-term credit, were refused loans constitutes support for the hypothesis that banks rationed credit, using criteria that discriminated against small businesses.[12]

There is some evidence that is at least consistent with this hypothesis. Table 3 shows the number of firms granted credit and the number of firms refused credit, both in relation to number of employees. It suggests some correlation between size (by number of employees), but certainly not a striking amount. For example, of the firms granted bank credit, 55.2 per cent employed fewer than 26 persons, while, of the firms that were refused bank credit, 68.6 per cent employed fewer than 26 persons. Table 4 shows an age distribution of the firms, broken down into those granted and those refused credit. Here, again, the results do not contradict the discrimination thesis: older firms did fare somewhat better than younger firms. But, also as before, the correlation is modest.

11. The 120 firms that indicated that they approached non-bank sources during the 1953–57 period were asked to identify these sources. The replies were as follows:

SBA	37	Savings and loan associations	3
RFC	9	Insurance companies	18
CCC	2	Stockholders	2
Private	33	Parent firm	1
Trust funds	1	Not indicated	14

12. Since the respondents were free to define "refused" as they saw fit, it is likely that some of these firms that reported they were refused credit simply meant that they found unacceptable the terms at which credit was actually offered.

There is stronger evidence, however, that the experience of these 107 firms does not provide any significant degree of verification for the rationing hypothesis. First, 29 of the 102 firms refused loans were actually turned down during the 1953–54 period of easy money when banks were largely reducing surpluses rather than shortages. Second, and more important, Dun and Bradstreet, at my request, supplied on April 30, 1958, a credit analysis of 80 firms—those that had made their names available—of the 107 that reported loan refusals. The results are shown in Table 5. They suggest that few of

TABLE 3

FIRMS REFUSED OR GRANTED COMMERCIAL BANK CREDIT BY NUMBER OF EMPLOYEES

No. of Employees	No. of Firms		Percentage of Total	
	Granted	Refused	Granted	Refused
1–5	48	24	14.3	24.2
6–10	44	13	13.1	13.1
11–25	93	31	27.8	31.3
26–50	37	12	11.0	12.1
51–100	58	10	17.3	10.1
101–200	30	4	8.9	4.0
201–400	14	0	4.1	.....
401–500	3	2	0.9	2.0
501–600	2	0	0.6	.....
601–1,000	.....	2	.....	2.0
1,001–1,500	3	0	0.8	.....
1,501–2,500	.....	1	.....	1.0
Over 5,000	2	0	0.6	.....
Not indicated	30	8	.....	.....
Total	364	107	99.4	99.8

TABLE 4

FIRMS REFUSED OR GRANTED COMMERCIAL BANK CREDIT BY YEAR OF INCEPTION OF FIRM

Year of Inception	Number of Firms		Year of Inception	Number of Firms	
	Refused	Granted		Refused	Granted
1830–40	0	2	1901–10	0	9
1841–50	0	1	1911–20	4	14
1851–60	0	2	1921–30	7	39
1861–70	0	3	1931–40	13	59
1871–80	0	4	1941–46	20	65
1881–90	1	7	1947–51	23	83
1891–1900	2	16	1952–57	30	37
			Not given	7	23

the firms in question have actually been cut off from bank credit to the extent that their answers to the questionnaire would lead one to infer. About 63 per cent of the firms analyzed had, in fact, been bank debtors during 1957 or were debtors in April, 1958. Another 22 per cent could, in Dun and Bradstreet's opinion, have rather readily obtained bank credit.[13] The remaining 15 per cent "could hardly justify bank credit," which presumably means that these firms would be denied credit whether money was tight or easy.

TABLE 5

DUN AND BRADSTREET ANALYSIS OF 80 FIRMS THAT REPORTED COMMERCIAL BANK REFUSALS OF THEIR LOAN REQUESTS

No. of Firms*	Credit Status
43.....	Currently indebted to commercial banks or recently so indebted
2.....	Not currently indebted but did obtain commercial bank credit in past year or two
1.....	Currently owes the Production Credit Administration
1.....	Currently owes the Small Business Administration on a direct defense loan
1.....	Currently owes factor
2.....	Currently owe private individuals (perhaps by preference because probably could have obtained bank credit)
15.....	Have no commercial bank loans but probably could have obtained such loans by meeting reasonable bank requirements
11.....	Could hardly justify bank credit

* Four of the 80 firms submitted to D & B for analysis had gone out of the business between the time of the questionnaire and April 30, 1958.

III

As is the case with most surveys of the type this paper has reported, the results are not conclusive. However, of the two hypotheses—one that Sixth District banks have rationed their funds in such a way as to discriminate against small manufacturing businesses, and the other that Sixth District banks have not rationed their funds in this way—it does seem fair to say that the results fit the latter hypothesis better than the former. Since the survey also indicates that small businessmen themselves hold the former hypothesis, one is tempted to draw another conclusion: that the opinions of individual businessmen cannot be relied on as evidence of the way businessmen and banks behave in the aggregate.

13. There are two things to be noted about the Dun and Bradstreet analysis. First of all, some of the firms that D & B reported to be bank debtors may have become so after the onset of easy money in December, 1957. Second, what D & B regard as "reasonable bank requirements" may constitute "refusal" to some prospective borrowers.

COMMUNICATIONS

A NOTE ON COMPENSATORY BALANCE REQUIREMENTS

DOUGLAS HELLWEG
Minneapolis, Minnesota

IT IS WELL known that many banks, particularly in the large cities, require their business borrowers to keep a stated fraction of their loans on deposit in the lending bank. Such deposits are known as "compensatory balances," and the fraction in question is known as the "compensatory balance requirement." It is the purpose of this note to show that, by eliminating compensatory balance requirements, a bank can enlarge its own earnings while at the same time reducing the effective rate of interest paid by the borrower. In other words, a reduction or elimination of compensatory balance requirements represents a movement to a (Pareto) superior position from the standpoints of the bank and the borrower if the criteria of superiority are solely an increase in the interest income of the bank and a decrease in the effective interest rate paid by the borrower. Other criteria will be discussed later.

To illustrate, consider a $1,000 loan total with a contract interest rate of 4 per cent at a bank with a 20 per cent compensatory balance requirement. The bank earns $40 a year on loans, while the borrowers pay $40 for the use of only $800, since they are required to keep $200 on deposit at the lending bank so long as their loans are in force. In other words, they are paying an *effective* rate of 5 per cent (40/800) as distinguished from the contract rate of 4 per cent (40/1000).

The entries in the "T" account in Table 1, where L, R, and D represent loans, reserves, and deposits, respectively, demonstrate that, by eliminating the compensatory balance requirement and by raising the contract rate of interest, the banker can at the same time raise his profits and lower the interest cost (effective rate) to his borrowers. Entry a represents the original condition of the bank (assuming reserve requirements of 20 per cent and no excess reserves), where $200 of the bank's deposits of $1,250 represent a compensatory balance requirement of 20 per cent against the bank's loans of

$1,000. Entry *b* represents the condition of the bank after compensatory balance requirements have been eliminated. The borrower or borrowers are assumed to have reduced their loans by the amount of idle compensatory balances which the bank no longer requires them to keep. Since the resulting deposit extinction lowers the bank's required reserves by (0.2) (1,250) — (0.2) (1,050) = $40, the bank is in a position to raise its loans from $800 to $840. The next entry (*c*) reveals the condition of the bank after this has been done. We are assuming not unrealistically that the proceeds of a bank loan will show up in the deposits of another bank rather than in the deposits of the lending bank, in the absence of compensatory balance requirements. Under these circumstances the lending bank's reserves will fall by the amount of the new loan. In our example, required reserves fell by $40 at (*b*), creating that much in excess reserves available for new loans.

TABLE 1

a)	*L*..... 1,000 *R*..... 250	}	*D*.....	1,250
b)	*L*..... 800 *R*..... 250	}	*D*.....	1,050
c)	*L*..... 840 *R*..... 210	}	*D*.....	1,050

Now there are an infinite number of new, higher contract interest rates which the banker can name which will both increase his profits and at the same time lower interest expense for the borrower. Let us assume that in the example of Table 1 the banker raises contract interest from 4 per cent at *a* to 4.9 per cent at *b* when he eliminates the compensatory balance requirement.

That both the banker and the borrower are better off under *c*, where the contract interest rate is 4.9 per cent than under *a*, where it is 4 per cent, is clear. The banker's interest income rises from (0.04) (1,000) = $40 to (0.049) (840) = $41.16, while the old borrowers' interest expense falls from (0.04) (1,000) = $40 to (0.049) (800) = $39.20; there is nothing magical here, the increase in the banker's income plus the decrease in the old borrowers' interest expense is exactly equal to the interest on the loans of $40 to new borrowers at 4.9 per cent, (0.049) (40) = $1.96. Borrowers now pay less interest for a given amount of usable funds, while the bank earns more on its total loans, even though this total has been reduced (by $160 in the example above).

The relations which yield the above result may be generalized mathematically. Thus the profits of the bank equal the contract interest rate i times the amount of loans, L. In turn, L is equal to total deposits minus required reserves or $D - rD$, where r represents the required reserve fraction. Total deposits, in turn, are equal to non-compensating deposits plus compensating deposits, or $D = D_n + D_c$. Finally, $D_c = KL$, where K represents the compensating balance requirement, the fraction of his loan which a borrower must leave on deposit at the bank; D_n, of course, is given for the individual banker. Thus,

$$L = (1 - r)\, D\,, \tag{1}$$

$$D = D_n + D_c\,, \tag{2}$$

$$D_c = KL\,, \tag{3}$$

$$L = (1 - r)(D_n + KL) = \frac{D_n - r\,D_n}{1 + rK - K} = \frac{D_n(1 - r)}{1 + rK - K}\,, \tag{4}$$

that is, L is a function of D_n, r, and K. Now we have suggested that for any $K > 0$ the banker can increase his earnings, P, with no increase in expense to the borrower of a given amount of *usable* funds. To prove this, we will consider a simultaneous reduction of K and increase of i such that the effective interest rate, e (an approximation to the market rate of interest), to borrowers is unchanged:

$$e = \frac{iL}{L - KL} = \frac{i}{1 - K}\,. \tag{5}$$

The constancy of e then imposes a unique relation between i and K given by

$$i = \bar{e}\,(1 - K)\,. \tag{6}$$

We will substitute the value for i given by equation (6) in the bankers' profit function (7) and then show that $dP/dK < 0$. This proves that bankers can increase their interest income with no change in the effective interest rate paid by borrowers, by reducing or eliminating compensatory balance requirements. By substitution from equations (4) and (6), we obtain

$P = iL$ becomes

$$P = \frac{\bar{e}\,(1 - K)\,D_n(1 - r)}{1 + Kr - K} = \frac{\bar{e}\,D_n - K\bar{e}\,D_n - r\bar{e}\,D_n + Kr\bar{e}\,D_n}{1 + Kr - K} \tag{7}$$

$$\frac{dP}{dK} = \frac{(1+Kr-K)(r\bar{e}D_n - \bar{e}D_n) - \bar{e}D_n(1-K)(1-r)(r-1)}{(1+Kr-K)^2} \tag{8}$$

$$= \frac{r\bar{e}D_n(r-1)}{(1+Kr-K)^2},$$

$$\frac{dP}{dK} < 0, \tag{9}$$

since all factors in the numerator but $(r-1)$ are positive and the denominator is a square. Because in the real world K cannot assume negative values, the implication of inequality (9) is that profits are maximized when $K = 0$.

In view of (9), why do compensatory balance requirements persist? One explanation may be that bankers feel that less risk attaches to a loan that is partially offset by a compensatory balance than to one which is not. Assuming that the banker has first claim on the compensatory balance (a rather strained assumption) in the event of a loan default, his loss amounts to $L - KL$ rather than to L. He has sacrificed profits to lower his risk. In the example of Table 1 we saw that the amount of loan funds actually "at risk"—total loans minus compensatory balances—rose from $800 under *a* to $840 under *c*.

But, since risk is a declining function of excess reserves as well as an increasing function of loans, one wonders why *b* in Table 1 with an *i* of 5 per cent is not better than *a* with an *i* of 4 per cent. The borrowers' interest expense and usable funds are the same, and the banker's income is the same but, in addition, under *b* he has $40 of excess reserves to use when withdrawals might otherwise have forced the liquidation of some assets on an unfavorable market at a loss. Risk is less under *b* than under *a*.

Another possible explanation is that borrowers irrationally look at the contract rate rather than the effective rate. Where this is so, a bank can raise P by raising K and leaving unchanged or even lowering i, contrary to the restriction imposed in equation (7), where the relation between i and K was determined by the requirement that the effective rate to the borrower be constant.

Or it may be that bankers wish to make their deposits as large as possible for reasons of prestige or because of a notion that added deposits, in general, mean added profit. While we have shown that the deposits of an individual bank (not the banking system) are indeed a positive function of K, it has been demonstrated, we trust, that this is not necessarily true of profits, especially where competi-

tion prevails and where borrowers are rational. In summary, a banker can always raise his interest income with no increase in interest expense to the borrower of a given amount of ***usable*** funds by reducing compensatory balance requirements and raising i. This fact is even more obvious if one assumes that every bank in the system imposes K compensatory balance requirements on borrowers. Total loans and deposits of the system are independent of K, since they are a function of the stock of bank reserves. The effective rate to borrowers is larger than the contract rate by

$$\frac{iL}{L-KL}-i=\frac{iK}{1-K}, \tag{10}$$

and relation (6) tells us that bankers can raise the rate of return on their loans (which are independent of K for the system) by $iK/(1-K)$ with no increase in interest expense to an individual borrower merely by eliminating compensatory balance requirements (equating K to zero) and raising the contract interest rate by $iK/(1-K)$. Admittedly, this ignores the possible reduction of interest rates generally, which might attend an increase in the total supply of usable funds and the possible reaction of the monetary authorities to the activation of formerly idle compensatory balances. For the individual bank, however, these considerations do not apply. The formulations of our individual bank analysis could be expanded to allow for non-loan earning assets and bank capital accounts, but, since such allowances do not change the sense of relation (9), they were omitted for simplicity.

THE USEFULNESS OF "OTHER" LOANS AS A CURRENT INDICATOR OF MOVEMENTS IN CONSUMER CREDIT

WINFIELD HUTTON
Georgia Institute of Technology

GIVEN THE ROLE that consumer credit plays in economic activity, a rapidly available indicator of current movements in consumer credit would be quite useful. Yet Federal Reserve estimates of aggregate consumer credit outstanding become available only after a lag of more than a month. This note has two objectives: (1) to call attention to the "Other" loans entry on the Federal Reserve Board's weekly reporting bank Statement of Condition, available after only a week's lag,[1] and (2) to show that this weekly series is a fairly consistent indicator of the direction and magnitude of changes in the more comprehensive monthly consumer credit series: consumer instalment credit at commercial banks, total consumer credit at commercial banks, and total consumer credit at all institutions (financial, retail, and service).

I

The "Other" loans entry in the weekly Statement of Condition is the difference between total loans and the sum of the eleven identified types of loans; that is, it is a balancing item. The bulk of these "Other" loans, however, are consumer loans. For example, on a quite typical call date (June 15, 1960) consumer loans accounted for about 90 per cent of "Other" loans at Reserve City and Central Reserve City banks combined (Table 1). These banks, in turn, make up most of the "leading city" banks covered by the weekly reporting bank Statement of Condition series. Consequently, one would expect movements in "Other" loans to reflect movements in consumer loans rather closely.[2]

1. Board of Governors of the Federal Reserve System, *Condition of Weekly Reporting Member Banks in Leading Cities* (Release No. H.4.2), weekly.

2. Differences between movements in "Other" loans and movements in the monthly comprehensive consumer credit series are usually accounted for by the following factors. First, "Other" loans are often more volatile than the comprehensive consumer credit series, as "Other" loans are based solely on reports from banks "in leading [large] cities." Thus "Other" loans reflect the wider movements in loans at banks in large cities, while the comprehensive series are based on reports from institutions in both large and small

TABLE 1*

COMPOSITION OF "OTHER" LOANS OUTSTANDING AT FEDERAL RESERVE MEMBER BANKS, RESERVE CITIES AND CENTRAL RESERVE CITIES, UNITED STATES, JUNE 15, 1960

Item	Amount Outstanding (Millions of Dollars)	Percentage of Total "Other" Loans
Consumer instalment loans	$5,803	62.2
Consumer single-payment loans	2,627	28.2
Total consumer loans	$8,430	90.4
Non-consumer loans included in "Other" category†	893	9.6
Total "Other" loans	$9,323	100.0

* Source: Board of Governors of the Federal Reserve System, *Member Bank Call Report*, No. 156 (June 15, 1960), p. 8.

† Non-consumer loans included in the "Other" category consist mainly of overdrafts and loans which cannot be included under any other category (i.e., loans to churches, hospitals, educational and charitable institutions, clubs, and similar organizations). Also included: loans and advances to the bank's trust department.

II

I have tested the reliability of "Other" loans as an indicator of the direction and magnitude of changes in consumer credit outstanding by making two kinds of comparisons. First, I have compared *month-to-month* percentage changes in "Other" loans and in the comprehensive consumer credit series; then I have compared the pattern of *weekly* movements in "Other" loans with *monthly* changes in the comprehensive series. These comparisons cover the period from January, 1956, through September, 1960.

Reliability of month-to-month percentage changes in "Other" loans.—Movements in "Other" loans from the Wednesday nearest the end of one month to the Wednesday nearest the end of the next indicate the direction of change in the comprehensive series quite reliably but are a rather poor indicator of the magnitude of month-to-month percentage changes in the comprehensive series.

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cities and hence are more stable. Also, outstandings for the more comprehensive consumer credit series are always stated as of the last day of the month, while weekly reporting bank statements of conditions are prepared as of the close of business each Wednesday. Therefore, some of the differences between the series as tested in this note may result from comparing end-of-month data for the comprehensive series with Wednesday-nearest-end-of-month data for "Other" loans.

End-of-month[3] movements in "Other" loans showed the direction of change in total consumer credit at commercial banks 88 per cent of the time, consumer instalment credit at commercial banks 86 per cent, and total consumer credit at all institutions 82 per cent of the time. Thus the "odds" are about 6 to 1 that a given month-to-month movement in "Other" loans will signal a movement in the same direction in the comprehensive consumer credit series.

Table 2 provides the test of the reliability of "Other" loans as an indicator of the magnitude of change in the comprehensive consumer credit series. It was derived as follows: Month-to-month percentage

TABLE 2*

RELATIONSHIP OF ERROR IN "OTHER" LOAN ESTIMATE OF MONTHLY PERCENTAGE CHANGE IN COMPREHENSIVE CONSUMER CREDIT SERIES TO AVERAGE MONTHLY PERCENTAGE CHANGE IN COMPREHENSIVE SERIES, UNITED STATES, JANUARY, 1956–SEPTEMBER, 1960

Comprehensive Series	Average Monthly Error in "Other" Loan Estimate of Percentage Change in Given Series† (1)	Average Monthly Percentage Change in Given Series‡ (2)	Relative Error (1)÷(2) (Per Cent)
Consumer instalment credit at commercial banks	0.559	0.942	59
Total consumer credit at commercial banks	0.465	0.889	52
Total consumer credit at all institutions	0.676	1.102	61

* Source: Adapted from corresponding data in *Federal Reserve Bulletin, passim.*

† Arithmetic mean absolute difference between month-to-month percentage changes in "Other" loans and given series.

‡ Arithmetic mean absolute monthly percentage change.

changes were computed for each series, and the deviations of the percentage changes in "Other" loans from the percentage changes in each comprehensive series were taken for each month and summed without regard to sign. Column 1 of Table 2 presents the arithmetic means of these deviations, or the average number of percentage points by which the monthly percentage change in "Other" loans deviated from the percentage change in the comprehensive series. Column 2 was derived by summing, without regard to sign, the monthly percentage changes in each comprehensive series and then taking the arithmetic mean, giving the average monthly *change* (not increase) in the comprehensive series.[4] The "relative error" is the

3. Taken as of the Wednesday nearest the end of the month.

4. The average monthly *increase* during the period would be somewhat less, since decreases were added to increases without regard to sign in computing col. 2.

quotient of column 1 divided by column 2; it indicates the relationship between the average estimating error from using "Other" loans and the average monthly change in the comprehensive series. If the "relative error" exceeds 100 per cent, estimates based on percentage changes in "Other" loans are of little value, since the error in estimating the change will likely be greater than the change itself.

The relative-error data in Table 2 suggest that "Other" loans give a more reliable indication of the magnitude of changes in total consumer credit at commercial banks than of changes in the other two

TABLE 3

RELATIONSHIP BETWEEN WEEKLY MOVEMENTS IN "OTHER" LOANS AND PERCENTAGE CHANGES IN COMPREHENSIVE CONSUMER CREDIT SERIES, UNITED STATES, JANUARY, 1956—SEPTEMBER, 1960

(Per Cent)

PERCENTAGE OF MONTHS IN WHICH "OTHER" LOANS SHOWED	COMPREHENSIVE SERIES		
	Consumer Instalment Credit at Commercial Banks (*a*)	Consumer Credit at Commercial Banks (*b*)	Consumer Credit at All Institutions (*c*)
Definite pattern, and change in comprehensive series was in same direction	91	88	84
Same direction and greater than average*	59	63	63
No definite pattern, and change in comprehensive series was less than average*	79	83	83

* Arithmetic mean absolute monthly percentage changes in comprehensive series were as follows: (*a*) 0.942 per cent, (*b*) 0.889 per cent, (*c*) 1.102 per cent (see Table 2, col. 2).

comprehensive series.[5] The average estimating error is 52 per cent of the average monthly percentage change in total consumer credit outstanding at commercial banks, compared with 59 per cent for consumer instalment credit at commercial banks and 61 per cent for total consumer credit at all institutions. These data mean that an analyst estimating percentage change in the comprehensive series from percentage change in "Other" loans will, on the average, be off by a little more than half the average monthly change in the comprehensive series—hence the conclusion that percentage changes in "Other" loans are not a very reliable basis for estimating magnitude of changes in the comprehensive series.

5. This is reasonable, since "Other" loans are conceptually closest to total consumer credit at commercial banks.

Reliability of the pattern of weekly movements in "Other" loans.—The pattern of weekly movements in "Other" loans during the month indicates more reliably than month-to-month percentage changes the direction and perhaps magnitude of change in the more comprehensive series. This relationship between the pattern of weekly movements in "Other" loans during the month and changes in the comprehensive consumer credit series is presented in Table 3.

Table 3 was derived as follows. If weekly data on "Other" loans moved in the same direction each week during a given month, they were assumed to show a "definite pattern." If "Other" loans moved in different directions during the month, they were considered to show "no definite pattern." These findings were then paired with the corresponding percentage changes in the comprehensive series for the given month to see whether "Other" loans (1) moved in the same direction as the comprehensive series and (2) the comprehensive series changed more or less than the average monthly percentage change for that series.

The data in Table 3 show that when weekly movements in "Other" loans during a month were all in the same direction, the more comprehensive series moved in that direction from 84 to 91 per cent of the time and changed by a greater than average amount 59–63 per cent of the time. Also, when weekly movements in "Other" loans followed no definite pattern during the month (i.e., went up some weeks and down in others), the comprehensive series changed little (i.e., less than average) 79–83 per cent of the time. Thus the pattern of weekly movements in the "Other" loan series provides a rather consistent indicator of both direction and magnitude of changes in the more comprehensive consumer credit series.

MEMBER-BANK BORROWING: A COMMENT

DONALD R. HODGMAN
University of Illinois

IN THE March, 1960, issue of this *Journal*, Professor Murray E. Polakoff offers an "integration thesis" to explain why and how much member banks borrow at the discount window of the Federal Reserve banks.[1] Briefly, Mr. Polakoff believes that member banks balance the *utility* of borrowing to save the least-cost spread by which the Treasury bill rate exceeds the discount rate against the *disutility* of borrowing viewed as an activity engaged in reluctantly to meet temporary needs. He then presents a statistical analysis of member-bank borrowing related to the least-cost spread (measured as the Treasury bill rate minus the discount rate), which he interprets as providing support to his explanation of the twin motives that influence borrowing. He finds that bank borrowings tend to increase with the least-cost spread up to a point, after which borrowings actually decline with further increases in the least-cost spread. This decline in borrowing in the upper ranges of the least-cost spread Polakoff interprets as significant support for the reluctant-need explanation for borrowing.

Both the "least-cost spread" and the "need" theories of borrowing are well known. The novelty of Polakoff's discussion lies in his formalization of the interaction of the two influences and his attempt to test their significance statistically. My purpose in this comment is to express some doubts as to the interpretation that he places on his statistical results and to present a modified view of member-bank motivation in borrowing which relies primarily on the profit motive rather than the need motive.

Polakoff's theoretical explanation of member-bank borrowing involves a hypothetical utility function in which the utility of the "profit" of borrowing (Treasury bill rate minus discount rate) is balanced at the margin against the disutility of engaging in a social act (borrowing) which is disapproved among the members of the banking fraternity. As borrowing by an individual bank increases, the disutility of further borrowing comes gradually into equality with the profit-related positive utility of further borrowing. When

1. Murray E. Polakoff, "Reluctance Elasticity, Least Cost, and Member-Bank Borrowing: A Suggested Integration," *Journal of Finance*, XV (March, 1960), 1–18.

the two are equal at the margin (and also equal to the least-cost spread), utility is maximized, and the expansion in borrowing halts.

For this model to behave in a manner consistent with a *positive but limited* amount of borrowing, the profit-related marginal utility of borrowing must initially outweigh the marginal disutility of borrowing and must decline relative to the increase in disutility as borrowing expands. Given this behavior, Polakoff deduces correctly that, for a sufficiently high (and in his case, constant) profit rate (least-cost spread) on borrowing, it is theoretically possible for the maximum utility of borrowing to occur at a smaller volume of borrowing than when the profit rate (least-cost spread) is lower. Accordingly, such a decline in borrowing above some critical level of the least-cost spread, if it can be observed statistically, may constitute evidence to support the hypothesis that the tradition of reluctant borrowing, with its associated disutility, plays a significant role in regulating the actual pattern of member-bank borrowing.

Polakoff feels that he has observed borrowing behavior consistent with his twin hypothesis in the record of member-bank borrowings related to the least-cost spread in the period July, 1953, through December, 1958. Indeed, the evidence that he presents in scatter diagrams is very suggestive of a systematic positive association between the volume of member-bank borrowings and the size of the least-cost spread. Further, the central tendency of the plotted observations may even provide evidence that the rate of increase in borrowings slows as the least-cost spread increases. This is not so certain. Finally, in several of the scatter diagrams there is an observed tendency for borrowings to abate in the upper ranges of the least-cost spread. This decline in the upper ranges Polakoff attributes to declining marginal utility of profit and increasing disutility of the socially disapproved practice of borrowing.

In my view this last interpretation rests almost entirely on spurious statistics. The difficulty is this: Polakoff omits from his analysis two extremely significant variables: (1) the demand for bank loans and (2) Federal Reserve open-market operations. The least-cost spread, which he interprets as a "profit," is, of course, not really a profit at all (as Polakoff recognizes) but a cost differential between borrowing at the discount rate and selling Treasury bills, thus foregoing their yield. The cost differential may explain the choice by banks between raising funds by borrowing and raising funds by selling bills, but it cannot provide the basic motivation for undertaking in the first place to raise funds by either one of the two methods. The underlying motivation stems from the demand for bank loans. To

measure the true profit on borrowing, we need to compare the effective interest rates on bank loans with the discount rate. This comparison Polakoff does not make.

In the two charts (*IA* and *IB*) in which Polakoff gives any indication of the dates to which the plotted points refer, it is evident that most of the *decline* in member-bank borrowing which took place at high least-cost spreads occurred in the last three quarters of 1958. During this period the expansion of Federal Reserve bank credit through open-market operations more than provided for the modest rise in commercial bank loans. As a result, the commercial banks repaid advances from the Federal Reserve System and then bought government securities.[2] Thus their reduction in borrowings was not the result of a surfeit of profits accompanied by aversion to borrowing but rather was due to a decline in their need to borrow to make customer loans, owing in considerable measure to Federal Reserve largesse through the open market.

The declining marginal utility of "profit" on which Polakoff's theory rests is questionable on one further ground. The amount of "profit" assignable to the least-cost spread is simply too small to support the thesis that it could affect the attitude of commercial bankers toward borrowing. The largest spread for which Polakoff's charts show an entry is seven-tenths of 1 per cent, and the largest amount borrowed in any week is about $1,300,000,000. Even had these magnitudes held for an entire year—which they certainly did not—the gain in bank profits before taxes would have been only $9,100,000, or less than four-tenths of 1 per cent of net bank earnings before taxes in 1958.[3] Much greater increases in bank earnings occurred annually from 1954 through 1958. These, however, failed to blunt the willingness of the commercial banks to incur the social opprobrium of borrowing when it suited their interests.

I agree with Polakoff that commercial bankers' interest in borrowing from the Federal Reserve System is somewhat responsive to the least-cost spread when loan demand makes their reserve position tight. But I am not impressed by the "need" theory of borrowing, since this lacks motivation until linked to the profit motive.

Banks may sometimes borrow to avoid showing capital losses or (when their secondary reserves are nearly exhausted) simply to ob-

2. See Board of Governors of the Federal Reserve System, *Historical Supplement to Federal Reserve Chart Book on Financial and Business Statistics* (September, 1959), pp. 5, 6, 14.

3. In 1958 net earnings before taxes of member banks were $2,510 million, and net profits were $1,457 million (see the table, "Member Bank Earnings, 1947–58," *Federal Reserve Bulletin*, June, 1959, p. 586).

tain funds to make loans to valued customers rather than on a nice calculation of the least-cost spread. But these reasons ultimately serve the profit motive as much as does the choice between borrowing and sale of Treasury bills. Moreover, my discussions with bankers have led me to conclude that the tradition of reluctant borrowing (at least since World War II) depends far more on the rationing policy of the Federal Reserve banks than on aversion to borrowing on the part of commercial bankers. Such rationing is sufficient explanation for the slowing-down in the rate of increase in borrowing which Polakoff's charts suggest may occur in the latter phases of a credit squeeze. Accordingly, I conclude that commercial banks borrow because of the profit motive broadly interpreted and that the limits to borrowing are primarily those enforced informally by the attitude of Federal Reserve officials.

MEMBER-BANK BORROWING: A REJOINDER

MURRAY E. POLAKOFF
University of Texas

MANY DIFFERENCES involve a failure of communication between the disputants, and this disagreement between Professor Hodgman and myself is no exception. I must obviously take some blame for failing to elaborate my position less ambiguously in the original article.[1] Consequently, I am grateful to Hodgman not only for his careful and valuable analysis of my hypothesis and tests but also for providing me with an opportunity to restate more precisely—and therefore more clearly, I hope—my views on this question of member-bank borrowing.

Specifically, I seem to have misled Professor Hodgman and, possibly, others who read the article by not making absolutely clear what appears to me to be a crucial distinction between the reason or reasons why member banks *may* resort to the discount window and the *extent* to which they actually *do* (p. 3, n. 6). The former, representing what Hodgman terms the "underlying motivation" for borrowing at the Fed, concerns the ancient controversy as to whether such borrowing is a function of need and/or profit, while the latter, which, for lack of a better term I call the "integration thesis," concerns itself solely with the *choice of method* by which the banks raise loanable funds to lend to their customers, *given* the basic motivation that prompts them to demand such funds in the first place. Regardless of the *ultimate* reasons why banks initially wish to borrow (i.e., need or profit), the *extent* to which they avail themselves of the discount window rather than the open market in satisfying their needs for loanable funds depends on the least-cost spread, i.e., the cost differential between borrowing at the discount rate or selling Treasury bills, thus foregoing their yield. Adjustment of bank reserves becomes a function of the relative profitability of the two alternatives, the banks preferring the least costly method.[2] Furthermore, subjective estimations can be imputed to the choice of using the discount win-

1. Murray E. Polakoff, "Reluctance Elasticity, Least-Cost, and Member-Bank Borrowing: A Suggested Integration," *Journal of Finance,* XV (March, 1960), 1–18.

2. Still another avenue which the larger banks in the System may choose in replenishing their reserves is the one-day federal funds market.

dow in preference to the sale of government bills when obtaining lendable funds, since such a choice involves at one and the same time *both* the psychological cost of borrowing (reluctance) and the utility derived from the relative profitability of adjusting reserve positions in this manner. Since the writer does not concern himself with the *ends* of bank borrowing (in fact, he would be prepared to go so far as to state that all such previous undertakings have been doomed to failure because it is virtually impossible to separate the need-to-serve-its-customers from the profitability component in bank loans) but rather with the *means* for attaining such ends, there is no reason for him to compare the effective interest rate on bank loans with the discount rate, as Hodgman would have him do, so as to measure what the latter calls "true profit." This is neither the meaning nor the purpose of the hypothesis. Rather, whether the initial desire for additional loanable funds stems from increases in customer loan demand and/or restrictive open-market operations by the Fed and whether such desire is psychologically related to need or profit, the fact remains that, given such changes, banks do have a choice of the method they will employ in replenishing their reserves—i.e., whether they will borrow or sell bills—and such choice presupposes certain psychological costs *and* utilities involved in the act of using the discount window. Hodgman, no doubt as a result of my own messy formulation of the problem, not only misses the essential criterion employed but confuses matters even more by going on to equate the demand for bank loans with profitability as the *underlying* motivation for the granting of such loans. This does not logically follow, since, as has already been pointed out, the latter may depend not only on profitability considerations but also on customers' needs as well. Similarly, Hodgman's criticism that "the amount of 'profits' assignable to the least-cost spread is simply too small to support the thesis that it could affect the attitude of commercial banks toward borrowing" confuses the choice of avenue of replenishment of reserves with total profits derived from the banks' use of their loanable funds *regardless of source* and so is not germane in the evaluation of the integration hypothesis.

Semantic difficulties aside, Hodgman's major criticism revolves around the interpretation to be given to the decline in indebtedness outstanding as illustrated by Charts I*A* and I*B* in the article. He accuses the writer of misinterpreting his own statistical data. According to Hodgman, Federal Reserve bank credit during the last three quarters of 1958 more than compensated for the increase in bank

loans. Accordingly, the banks were enabled to repay their advances during this period while, at the same time, adding governments to their portfolios. Therefore, it follows that bank "reduction in borrowings was not the result of a surfeit of profits accompanied by aversion to borrowing [*sic*] but rather was due to a decline in their need to borrow to make customer loans, owing in considerable measure to Federal Reserve largesse through the open market." The latter and not the integration hypothesis, Hodgman insists, explains most of the decline in discounts outstanding at high spreads.

As Professor Hodgman poses the issue, it becomes essentially a difference over a simple matter of fact, namely, whether or not he is correct in his assertion that member banks repaid advances during the last three quarters of 1958. Yet the monthly averages of daily figures reveal quite plainly that borrowings rose rather steadily from $130 million in April, 1958, to $557 million by the end of the year.[3] Over the same period both discount rates and yields on Treasury bills also advanced. Yet, as was pointed out in the article, "assuming that the data between April and December, 1958, indicate the beginning of a new cyclical phase, it would still appear that the volume of discounts and advances outstanding during these months tended to decrease, once a positive spread of 0.4 per cent was reached in the weekly data and 0.3 per cent in the monthly data" (p. 11, n. 18).[4] Thus it would seem that it is Professor Hodgman and not the writer who has seriously misinterpreted the statistical evidence. Not only was there no decline in borrowings outstanding during this period due to repayment of advances induced by easing of open-market operations by the Fed, but free reserves declined in the last three quarters of 1958 by some $534 million.[5]

Feeling that he has satisfactorily explained most of the downturn in bank indebtedness, Hodgman concludes his paper by attempting to draw upon what he conceives to be an alternative explanation to that of the integration thesis in analyzing the empirical slowing-down in the rate of increase in borrowing during the latter phases of a credit boom. According to him, such a slowing-down "depends far

3. *Federal Reserve Bulletin*, March, 1959, p. 269.

4. Precisely to prevent the type of misunderstanding that might arise solely through scrutiny of Charts I*A* and I*B*, the writer also presented several other scatter diagrams, including two covering the relatively homogeneous expansion phase of September, 1954, through August, 1957. Chart II*B*, showing monthly averages of daily borrowing figures for this period, indicates quite clearly a downturn in borrowings outstanding at high spreads.

5. *Federal Reserve Bulletin*, March, 1959, p. 269.

more on the rationing policy of the Federal Reserve Banks than on aversion to borrowing on the part of commercial bankers." This may well be true, but what Hodgman fails to realize is that this explanation, far from contradicting the original hypothesis, only lends support to it because the banks' aversion to the use of the discount window may be thought of as consisting of not only their own tradition against borrowing but the administrative action of the Fed *as well.* This point is made rather clearly in the article, where I stated: "The second motive gains support from the banks' 'tradition against borrowing,' while their reluctance to borrow is *further reinforced* by the policing action of the System under Section 4 and the Foreword to recently amended Regulation A of the Federal Reserve Act" (p. 2, italics added).[6] What Hodgman is really saying in terms of the author's terminology (excluding for the moment the banks' own tradition against borrowing) is that, as a result of the administration of the discount window by the Fed, a point is reached eventually during a tight-money period and relatively high spreads where the marginal disutility of borrowing outweighs the marginal utility of spread or any other variable that might induce the banks to maintain a constant or accelerated rate of borrowings. Hence such borrowings have a tendency to taper off. The writer is delighted at this point to welcome Hodgman, if only side-saddle, aboard his mount. Yet, since Hodgman's "rationing" explanation is nothing more or less than one aspect of the banks' aversion to the use of the discount window and since he has previously failed to controvert the validity of the integration thesis in explaining the reasons why a decline in discounts outstanding may take place during a period of credit stringency, little would appear to remain of his original criticism. In closing, perhaps the most modest course of action which I can follow is to quote the conclusion that Hodgman himself so aptly draws early in his paper: "Accordingly, such a decline in borrowing above some critical level of the least-cost spread, [and/or, it may be added in the light of the above, a slowing-down in the rate of increase in borrowing itself], if it can be observed statistically, may constitute evidence to support the hypothesis that the tradition of reluctant borrowing with its associated disutility plays a significant role in regulating the actual pattern of member-bank borrowing."

6. In point of fact, the writer has recently utilized precisely this component in the banks' aversion to borrowing to argue in favor of contracyclical administration of the discount window in the formulation of over-all discount policy by the Fed (see his "Discount Theory and Policy in a Period of Tight Money," a paper delivered at the annual convention of the Southern Economic Association, Atlanta, Georgia, November 18, 1960).

MEMBER-BANK BORROWING: AN ADDITIONAL COMMENT

DONALD R. HODGMAN
University of Illinois

MY REFERENCE to the *decline* in bank borrowings in 1958 is intended to refer to their low general level in that period of comparative ease in contrast with the preceding period of comparative tightness. The point is that the observed association in 1958 of reduced levels of borrowings and high values for the least-cost spread may readily be explained in terms of Federal Reserve moves to ease credit via all three traditional instruments. Thus this decline need not support Polakoff's thesis that bankers' reluctance to borrow overcomes their cupidity in the upper ranges of the least-cost spread.

ABSTRACTS OF DOCTORAL DISSERTATIONS

UNITED STATES CREDIT POLICY IN THE 1954–57 PERIOD*

PETER D. STERNLIGHT
Federal Reserve Bank of New York

THIS DISSERTATION examines credit policy—its rationale, background, and the economy's responses—in the 1954–57 interval. Its focus is the policy of restraint, which was applied as the economy emerged from the 1954 recession and was relaxed as another recession began in the latter half of 1957.

The rationale for Federal Reserve policy rested on three main points. First, by controlling the availability of bank reserves, the authorities can strongly influence bank credit and thereby have a major impact on credit availability and total spending in the economy. Second, the central bank should influence only the *total* supply of funds, leaving allocation to the market place. Third, the proper prescription for curbing inflation is restriction of demand.

This rationale and its application were criticized on many counts. General effectiveness was challenged, for example, by pointing to the banks' ability to meet loan demands through selling investments, to the growth of non-bank lenders, and to widespread insensitivity to interest rates. On equity grounds, credit restraint was criticized for discriminating against housing, small business, and state and local governments. Also, the *appropriateness* of restraint was challenged on the ground that price increases in 1955–57 were not due to excess demand. Finally, regarding the specific application of policy, it was claimed that ease went too far in 1954, that restraint was too late and mild in 1955, and that restraint was overdone in 1957.

The study found some merit in many of these criticisms but concluded that credit policy was still worthwhile. The chief limitation on effectiveness was that, up to a point, liquidity could be squeezed (velocity could rise) without producing much real restraint. There was only slight restriction on bank loans by mid-1955, when excess

* A dissertation completed at Harvard University in 1960.

demand was strongest, and not until mid-1956 was restraint "moderately firm." While some delay of this sort is unavoidable, it might help to curb the rise in velocity if banks could not deduct capital losses from income in computing taxes. The other alleged limitations on effectiveness were found to be minor.

Although the impact of restraint was indeed uneven, the differential effects were not unduly great. In part this was because the sensitive sectors found some relief elsewhere (e.g., via "Fanny May"), and in part it was because *general* restraint had only moderate force.

Regarding *appropriateness,* it was concluded, first, that credit restraint is not directly effective against inflation stemming from the cost or sellers' side, except at the expense of employment, but, second, that such restraint impairs the environment for "cost-push" pressures and may therefore be warranted in moderate degree even if demand is not generally excessive. In mid-1955 the strength of demand justified firm restraint. From late 1955 to early 1957 demand was not excessive, but it was full enough to justify moderate credit restriction; restraint should not have been so strong as to prevent any price rise—and, in fact, it was not.

In application, policy did not tighten quickly enough in 1954–55, was about right in 1956, and should have eased sooner in 1957. While its effectiveness was somewhat blunted, the over-all degree of restriction during the period under review should have been no greater in view of its uneven impact and the lack of excessive demand after 1955. Tighter restraint could have contained prices more closely, but only by depressing real demand and aggravating the already marked impact on certain sectors. Yet the moderate restraint actually applied did not appear to retard real growth significantly or to bring on or seriously deepen the 1957–58 recession. On balance, the favorable effects of policy outweighed its shortcomings.

SELECTED PROBLEMS FACED BY FIRE AND CASUALTY INSURERS UNDER STATE AND LOCAL TAXATION*

ROBERT S. FELTON
Louisiana State University

THE MAJORITY of states impose special taxes on fire insurance premiums. These taxes may be for the support of the state fire marshal's office, firemen's pension programs, the purchase of fire-fighting equipment, or all three. Thus the people who buy fire insurance pay for fire protection that benefits both those who buy fire insurance and those who do not buy fire insurance. In approximately twelve states, the local governments tax insurance companies.

The objective of this thesis is twofold: first, to test the hypothesis that the taxation referred to above is inequitable and then, assuming that it is found to be inequitable, to investigate proposed solutions to the inequity and to develop other solutions. The taxpayers with whom this dissertation is concerned include the fire and casualty insurance carriers. The companies are subject to premiums taxes, licenses, and fees. The possible solutions that have been investigated and the solutions proposed are within the existing framework of the present system; that is, the only alternatives considered are those that appear to be politically feasible.

Possible solutions to correct the alleged inequities can be broken down into solutions that affect the special state taxes, those that concern municipal taxes, and more general considerations that are not classifiable by level of government. One of the more desirable solutions to correct the inequities of the special state taxes would be an agreement between the states and the insurance industry whereby states would insert "in lieu of" provisions in a *single* premiums tax law. The insurance industry would be willing to pay a total amount at least equal to the total of all state and local taxes now in existence. Another possible solution would be a program of concerted litigation based on the constitutionality of the special taxes.

In the case of municipal taxes it is the author's opinion that more can be accomplished in preventing new taxes through the use of the "in lieu of" provision than in attempting to eliminate the present

* A dissertation completed at Indiana University in 1960.

taxes. If it were possible to make an agreement with municipalities to trade a higher state tax (to be distributed to the municipalities) for an "in lieu of" provision, this would help slow down the trend toward municipal taxes.

It was decided that there is little hope of eliminating the disparity between foreign and domestic companies. The difference in tax rates between mutual and stock companies is not enough to warrant concern, since most of the exemptions for mutual companies are local in character.

After considering problems of the implementation of suggested changes, certain recommendations were made to the insurance industry. These recommendations included the creation of an all-industry committee to study the problems and formulate long-term goals, the creation of a standing committee of the National Association of Insurance Commissioners to study the problems, the encouragement of the expansion of out-of-state business to create an awareness of retaliatory pressures for holding down foreign tax rates, utilization of the political influence of small insurance companies whenever there is a common ground, and the familiarization of insurance company personnel with the subject of taxation.

Finally, extensions for further study to verify the solutions and recommendations suggested were listed.

THE DEBT-EQUITY RATIO*

DAN USHER
United Nations, Economic Commission for Asia and the Far East

THIS IS A theoretical and empirical investigation of how firms establish their capital structures. Though in a few instances an attempt is made to explain the diversity of the bond market, why several liens of bonds with different legal provisions and terms to maturity are found in the capital structure of a single firm, most of the theory is concerned with how a firm sets the proportion between stocks and (one lien of) bonds in its capital structure as a whole.

The nub of the problem is to study what adjustments can be made in traditional economic theory in order to explain a market in which stocks and bonds are purchased by people who not only hold dissimilar opinions about the prospects of the firm but are themselves in doubt about its value. The foundation is a precise definition of risk. Risk is treated like a normal commodity for which an investor is willing to pay a price depending on the intensity of his risk aversion. A firm is, therefore, a joint commodity composed of "risk" and "capital." The commodity, risk, may be subdivided; the issuing of bonds automatically divides the risk associated with the firm as a whole (prior to the issuing of bonds) into stock risk and bond risk, each of which has a value depending on (*a*) the riskiness of the firm as a whole, (*b*) the debt-equity ratio, and (*c*) the degree of risk aversion of the investors who are buying the stocks and bonds. The risk of a firm as seen by an investor is a probability distribution of its possible future earnings. There need be no uniformity of opinion among investors about the mean, dispersion, or shape of the distribution of any one firm.

Several models are developed on various simplifying assumptions about the stock and bond market. The main model postulates that (*a*) there is uniformity of opinion among all investors about the shape of the probability distribution of some given firm; (*b*) the market for stocks and bonds is divided into two groups of people, those with small risk aversion, who, so the theory implies, buy the stocks of the firm, and those with great risk aversion, who buy bonds; and (*c*) the object of a firm is to maximize its market value.

* A dissertation completed at the University of Chicago in 1960.

The theory has several empirically verifiable implications. Among these are the following: (*a*) *The leverage proposition.* The issuing of bonds makes the stock risky. This may be tested by a multiple regression of the form stock riskiness $= f$ (riskiness of the firm as a whole, debt-equity ratio), where the observations are on a sample of 57 large American firms. (*b*) Risky firms tend to rely more on stock financing than on bond financing. This may be tested by observing the sign of the correlation between the riskiness of the firm as a whole and the debt-equity ratio. Both these propositions are verified by the evidence, though the latter only weakly so because of statistical difficulties.

The measure of the debt-equity ratio is taken to be senior capital—the value of all debt obligations of the firm of more than one year to maturity, including preferred stock—divided by the market value of the common stock. The measure of the riskiness of the firm as a whole is the "cost of capital"—the total earnings of the firm, including interest payments, divided by the value of both the common stock and the debt obligations. The cost of capital, much like a rate of interest which includes a risk premium, is quite commonly used as a measure of risk; its appropriateness is also suggested by the theory. There are five measures of the riskiness of stock: the earnings price ratio, the variability of earnings over time, the variability of stock price over time, the volume of trading, and the volume of short interest, the last two measures being weighted by the number of shares outstanding. A positive intercorrelation among all these risk measures is itself evidence that they point to some common factor.

It is shown empirically that risky firms tend to do a good deal of short-term financing. This may be to provide flexibility in varying the scale of operations in response to changing demand conditions.

Almost half the dissertation is composed of appendixes that take up questions ancillary to the main theme. There is a brief discussion of problems connected with the distinction between risk and uncertainty and a section examining the assumption that firms maximize their present value even under conditions of uncertainty. This section also deals parenthetically with the control of the firm.

THE MEASUREMENT OF LOCAL FISCAL CAPACITY*

HARRY H. LANDRETH
Miami University

A NUMBER OF PREVIOUS attempts have been made to measure either economic or fiscal capacity for use in grants-in-aid programs. Most of these were attempts to measure the capacities of the states, and seldom was a distinction made between economic and fiscal capacity. Most of these measures of capacity can be rejected on the grounds that the construction of the measures involves subjective judgments difficult to defend. Per capita assessed valuation and per capita income appear to be the only available measures of local fiscal capacity that can be formulated and measured in a reasonably straightforward and objective manner.

This study, therefore, focused on the adequacies of per capita income and per capita assessed valuation as measures of local fiscal capacity. While the adequacies of these two measures as indicators of local fiscal capacity are discussed in general terms which would apply to any local unit of government, primary attention is directed to the county, for more data are available for the county than for other local units.

Per capita assessed valuation is the more commonly used measure of local fiscal capacity because of the historic importance of the property tax as a local revenue source. Per capita assessed valuation has serious limitations as a measure of local fiscal capacity, in that the basic statistics are notoriously unreliable. In most states scientific assessment procedures are not used, and the assessment process is closely connected with the politics of the county courthouse. There is, therefore, a wide variation between assessment ratios among local areas within a state, and this severely restricts the use of per capita assessed valuation as a measure of local fiscal capacity.

Per capita income is first examined as a measure of local economic capacity. While per capita income is by no means a perfect measure of local economic capacity, it is the best measure available, and its limitations are not so serious as to prohibit its use. There are a number of questions which can be raised concerning the use of per capita

* A dissertation completed at Harvard University in 1960.

income as a measure of local fiscal capacity. The most important of these questions concerns whether income should be measured on a produced or received basis, and, in the absence of data on income produced, no definitive answer can be given to this problem. Another important question concerning the use of per capita income pertains to the difficulties of estimating income where there is a large amount of interarea commuting.

These and other limitations on the use of per capita income as a measure of local fiscal capacity are not as serious as the limitations possessed by per capita assessed valuation where assessment procedures are inadequate. Income is a more satisfactory measure of local fiscal capacity where interarea equalization of assessed property values is inadequate and where more than 50 per cent of local revenues is derived from sources other than the property tax. Where assessment procedures are adequate and property tax revenues constitute the major source of local revenue, per capita assessed valuation is the more satisfactory measure of local fiscal capacity in that it is a direct measure of the tax base of the community.

FINANCIAL INTERMEDIARIES IN ISRAEL, 1950–54*

RACHEL FLOERSHEIM
National Bureau of Economic Research

THIS STUDY IS an investigation into the structure of the financial intermediaries in operation in Israel in 1950–54 and the factors that affected the development of the various specific groups of intermediaries. First, the role of financial intermediaries in an economic system is discussed in general terms: What are the variables that determine the level of funds demanded by economic units from financial intermediaries? Under what conditions will ultimate owners of funds hold financial assets? Can these assets be acquired directly as claims on the ultimate users of funds or indirectly as claims on the financial intermediaries? The effect of financial intermediaries in the economy is also analyzed: the operation of these organizations reduces the demand for cash holdings as an asset by substituting financial earning assets (claims on themselves) which are nearly as riskless and liquid as money but which pay a positive rate of interest.

The framework in which financial intermediaries operate is applied to the specific experience of the Israeli economy. It is shown that, since real national output grew rapidly and the general price level rose even faster, there was no scarcity of opportunities to channel funds to ultimate users of funds. However, the inflation prevented financial assets from being acquired voluntarily by potential savers because of the decline in the purchasing power of these assets. Funds were made available for development either involuntarily, i.e., through the inflationary process which led to the expansion of the banking organizations, or through increased dependence on the international flow of capital. The import surplus which assisted in developing the Israeli economy was channeled through the government and Jewish Agency development budgets, and, as a result, the importance of the public and the quasi-public sectors in the economy increased. The effect of funds obtained from the government development budget led to a rapid growth of finance companies of the public and quasi-public sectors and was also felt on the development of other types of financial intermediaries.

* A dissertation completed at Johns Hopkins University in 1960.

The discussion of the development of individual groups of financial intermediaries shows why the growth of banking organizations was restricted and how the monetary authorities aimed at halting the inflationary process by restricting banks' credit. Further, the development of insurance organizations is discussed. It is shown that, because of demographic factors as well as because of the rise in money wages and in real per capita income, the potential for the growth of insurance organizations existed; it is also shown how the insurance organizations responded to the inflation by granting a substantial portion of the funds they obtained as loans to ultimate owners of these funds, such as life insurance policyholders, members of the pension funds, and the employing firms which made allowance to them on behalf of their employees. The study reveals that private finance companies and mortgage companies, though they were established in order to pool and channel personal savings, obtained funds from the government development budget. Private finance companies also obtained funds from secondary financial intermediaries or from affiliated companies. That personal savings were not forthcoming as a source of funds for these groups of intermediaries is due mainly to the inflation which affected the Israeli economy for about a decade and a half before 1954.

INDIVIDUAL PURCHASES OF TAX-EXEMPT BONDS IN THE 1946–56 DECADE*

JAMES M. HEIDELL
Ladenburg, Thalman & Co.

THIS STUDY DEALT with individual motives and standards. A questionnaire based on the hypothetical investment of $5 million was answered anonymously by key advisers in fifty banks and investment houses, including seven of the ten largest banks and firms handling at least 40 per cent of stock-exchange business.

The results indicated that advisers would recommend that only 60 per cent be placed in tax-exempts and that many individuals who could secure tax advantage purchased few or no municipals. The five-page questionnaire explored why yield after taxes was not the only consideration. The primary reason for restricting investment was fear of inflation, and the second related reason was lack of possibility of capital gain. Rated third was poor marketability, but this and the traditional objections of tax repeal or substantially lower taxes were of small importance.

Rating agencies were utilized by 75 per cent of investment firms and a preponderance of the banks. Many relied on them. Moody's rating was the most popular; Standard & Poor was used only somewhat. The rating services have difficulty in securing information and reducing it to an absolute standard.

By 1956, the median point at which advisers were suggesting some tax-exempts was in the 35 and 40 per cent income tax brackets. Some recommended them in the 20 per cent bracket, and none thought it necessary that the tax bracket exceed 50 per cent. In 1946 the median tax bracket had more nearly been 50 per cent, and some advisers would not have recommended them below 75 per cent. By 1956 no capital test was significant; tax bracket was the key test. In 1946, wealth of $300,000–$500,000 had been considered necessary.

Approximately 20 per cent of tax-exempt purchases would be in revenue bonds. Individual investors tended to space maturities rather than limiting or increasing purchases because of conviction as to the course of interest rates.

* A dissertation completed at New York University in 1960.

There is no standard unit of trading. Questionnaire responses indicated that for individuals a 5-bond lot was usual in many cases, but lots of 25 bonds were considered standard by others. Banks and insurance companies apparently prefer lots of at least 100 bonds. There is no recognized exchange, nor can dealers maintain sizable markets. Purchases on original underwritings bulk larger than those in the secondary market. In this buyers' market the high cost of sale renders short-term speculation difficult.

Generally, during the period, high yields caused significant tax loss to the federal government without corresponding savings to the issuing states and local entities. Differentiation of coupon and maturity caused public housing authority bonds to waste some of their interest savings.

There is too little help available to the individual either in making his purchase or for prudent caretaking; even advisers relied on secondary sources, such as ratings or concentrated purchases among those units for which information was readily available. Most municipal annual reports are mere compilations of figures without narrative, and even the few readable reports have only small professional circulation. Advisers rarely initiate sales suggestions except for tax-loss purposes.

More individuals will own tax-exempts than have held them in the past, with taxpayers in the lower brackets using high-grade ten-year tax-exempts for part of their liquid funds. However, holdings of over 50 per cent of all assets in tax-exempts, even in the highest tax brackets, should become more unusual. The municipal bond is a unique investment in the field of United States finance, and improvement in marketability and information available should insure inclusion in individual portfolios.

THE FEDERAL NATIONAL MORTGAGE ASSOCIATION, 1938–57*

LEONARD PERRY VIDGER
San Francisco State College

DETAILED AND DOCUMENTED accounts have been written on various government agencies which have figured importantly in housing and real estate finance. Despite the attention which the Federal National Mortgage Association (FNMA, "Fanny May") has attracted and the impact of its operations upon housing, this financial institution has somehow escaped the scrutiny of scholars.

To provide necessary background, this study reviews the rapid growth of non-farm mortgage debt and attempts to establish a secondary (resale) market for home mortgages patterned after those developed for securities and commodities. The nearest approach to this objective presently exists in FNMA. Relatively inactive in the first decade of its existence, FNMA has expanded greatly since 1947. This growth is attributable largely to the rapid increase in mortgage credit, which, in the postwar period, has outstripped that of all other debt categories—public and private. To place mortgages on a more competitive basis with other investment media for the scarce amount of available capital, it is imperative that their marketability be enhanced.

This study was motivated in the light of the above developments. Concepts and criteria for evaluating the performance of a secondary mortgage market institution were formulated. After delineating the functions performed and policies pursued by FNMA, consisting of mortgage purchasing, selling, pricing, portfolio servicing, administration of capital, financial operations, accounting procedures and controls, and top management, a detailed description and analysis of each was made in one or more of the twenty-one chapters in this study.

Despite market-support activity and pursuance of a rigid pricing policy, the pre-1954 FNMA generated large earnings resulting mainly from financing operations with capital borrowed from the United States Treasury at subsidized interest rates. This factor and failure to bear other operating expenses have given FNMA a misleading

* A dissertation completed at the University of Washington in 1960.

reputation for profitability. Overstated earnings, returned to the federal Treasury largely in the form of dividends, greatly exaggerated the government's yield on a small equity investment in FNMA.

Pursuant to the Housing Act of 1954, various incompatible objectives performed by the original association were delineated when FNMA was reconstituted as three separate legal operating entities. The Management and Liquidating counterpart was established to manage and service the mortgage portfolio of the predecessor association with little disturbance to the mortgage market and minimum loss to the federal government. The Special Assistance Program, financed wholly by the United States Treasury, was created to support special housing programs sponsored by the government and to counteract a decline in private mortgage lending and in house construction. The Secondary Market facility was established to achieve objectives approaching those long advocated by the mortgage banking industry.

Unlike the original association, adoption of a flexible pricing policy by the Secondary Market Operations has enabled it to sell a substantial volume of mortgages without sustaining capital losses. Moreover, in obtaining capital principally from private investors at market interest rates and bearing all operating expenses, the reorganized FNMA has demonstrated that a secondary mortgage market institution can be a profitable undertaking. The new operation has also enhanced the marketability of federally underwritten mortgages and has enabled institutional lenders—although predominantly mortgage companies—to achieve portfolio adjustments at going market prices.

A secondary market facility for home loans, however, will be greatly inhibited in attaining desired objectives as long as barriers and attitudes prevail which cause financial institutions to express reluctance in acquiring mortgages originated in remote regions. With a scarcity of capital likely to persist for some time and the unmarketable characteristics of mortgages, it is compelling that further research be conducted on the nature and behavior of regional mortgage markets, significance of legal considerations, and operating policies of institutional investors.

THE SMALL-LOAN INDUSTRY IN TEXAS*

DONALD A. TYREE
St. Louis University

THIS STUDY HAS three main purposes: to present statistical characteristics of the market, service, and institutions of the small-loan industry in Texas; to describe and analyze regulatory laws of the state which currently apply to the industry; and to present principles of small-loan regulation as a suggestion for essentials of a small-loan law for Texas.

During the last forty years the small-loan industry has developed into a national and major source of consumer credit. State legislation and supervision have done much to guide the industry's growth on an ethical basis. However, the "loan-shark problem" still prevails in states without adequate small-loan statutes. Texas has no small-loan act, and loan charges exceeding an effective annual rate of 200 per cent are not uncommon in the state. In consequence, Texas has been described as a "paradise for loan sharks."

Ironically, the state usury law is both the source of strength for abusive lenders and the major barrier to legitimate lender operations. A provision (adopted in 1876) of the Texas constitution limits interest to 10 per cent per annum. Nation-wide experience indicates that this rate is insufficient to induce capital investment in the small-loan industry. Thus the usury law has prevented legitimate lenders from fully competing with loan sharks collecting exorbitant charges.

Today, two types of lenders operate in Texas: the certificate lender and the unregulated lender. The latter type uses various lending devices to avoid usury regulations, such as the "open note plan," the "brokerage plan," the "supplemental charge plan," and the "credit insurance plan." On the other hand, the certificate lender group is composed, in general, of ethical lenders operating according to provisions of the Industrial Loan Law (similar to an industrial banking or Morris Plan act).

Statistical data for 1957 provided by the Texas Consumer Finance Association indicate that a certificate lender's loan office will make an average number of 1,274 loans, totaling $607,920 per year. While between 84 and 96 per cent of certificate lenders' assets consist of

* A dissertation completed at the University of Texas in 1959.

loans receivable, approximately 50 per cent or more of their liabilities are long-term debt obligations. Bank loans appeared to be their chief single source of credit. In 1957, thirteen certificate lenders earned a return on investment of 6.69 per cent including insurance profits and 1.34 per cent excluding insurance profits.

In 1957 the average size of loan made by certificate lenders was $465, was outstanding for more than 16 months, and was usually secured by a pledge of household chattels. During 1957 the "average Texas borrower" was between twenty-one and thirty-five years old, a skilled or semiskilled worker earning about $327 per month who obtained a loan to refinance or consolidate some of his outstanding debts. Generally, statistics of loan and borrower characteristics of the legitimate industry in Texas are similar to those in states with small-loan laws.

In order to accomplish equitable small-loan regulation, it is necessary to observe and adhere to loan rate-making principles of (1) adequacy of rates, (2) reasonableness of rates, (3) equity of rates, (4) rates as a stimulus for a complete loan service, and (5) recognition of practical considerations in rate-making. Rate determination, licensing standards, supervision, reports and examinations, and penalties must all be considered prior to the adoption of a small-loan law. The sale of credit life and disability insurance in the small-loan field involves a controversial issue of significant purport not completely settled.

From the study certain conclusions are drawn. (1) Loan-shark activities are prevalent in Texas; however, a large group of lenders is operating legitimately as certificate lenders. (2) The usury law should be amended to allow the legislature authority to set an adequate small-loan rate. (3) The Industrial Loan Law has allowed many lenders to operate legitimately, but the law has many defects and may ultimately be used by abusive lenders. (4) Credit life and disability insurance are adequately regulated in Texas, but group credit life insurance is not. (5) Texas should adopt a small-loan law based upon the Uniform Small Loan Law and the Model Consumer Finance Act, with the incorporation of specifically recommended modifications.

THE ORGANIZATION OF SAVINGS AND LOAN ASSOCIATIONS*

DANILO ORESCANIN
University of South Florida

THE STUDY IS concerned with comparing organizational practices of savings and loan associations with organizational relationships and concepts as set forth in management literature. It is the first comprehensive study undertaken to perform this task relative to savings and loan associations. The results of the comparison and analysis can then be utilized by association management for purposes of evaluating, planning, or changing the current organization structure.

The study is presented in two parts. The first part establishes a basis for comparison and analysis characterized by the inclusion and reliance on growth as the creator of organization problems and change. The use of a growth framework is chosen for two reasons. First, many, if not most, problems of organization are the result of growth, and, second, savings and loan associations have encountered a fast rate of growth in the past decade, and estimates of growth during the next decade indicate an even faster rate of growth. The second part then compares organization practices and policies of a selected group of associations with this framework. The associations used for the comparison were selected because of tremendous growth and because, in the opinion of persons closely associated with the savings and loan industry, these associations appear to have made a great deal of progress over the past decade.

The comparison and analysis that is undertaken leads to several conclusions and recommendations. The conclusions relative to the associations studied are as follows:

1. Savings and loan associations experience the same problems of organization as do other types of business firms, but at an earlier stage in their growth and development.

2. It is possible to identify certain symptoms of organizational problems in these associations, thus enabling management to avoid or mitigate problems resulting from growth.

3. The conceptual framework, developed in Part I, can be used by individual association management to observe the existing organiza-

* A dissertation completed at Indiana University in 1960.

tion and project the future organization problems of their particular association.

4. Certain criteria of good organization can be applied to evaluate the organization before and after changes have been made, in an attempt to mitigate or avoid organization problems.

5. The rule of thumb currently used to evaluate associations in terms of the number of people employed per million dollars in assets is deceptive and should be avoided.

The recommendations resulting from the study are as follows:

1. Association management should delegate authority to a greater degree, in order to provide their subordinates with an opportunity to operate and understand their association and functions.

2. Savings and loan association management should move more in the direction of formal personnel programs, with emphasis on planning and staffing the organization, in order to provide for a more competitive and dynamic future.

3. Savings and loan association management must be concerned with communicating objectives, policies, and procedures to all employees.

The study contains detailed case studies of twenty savings and loan associations that were used for the comparison and analysis that were performed. These case studies give insight into specific problems within associations and thus extend the information provided in general terms by the text of the dissertation.

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BOOK REVIEWS

Business Finance

The Capital Budgeting Decision. By HAROLD BIERMAN, JR., and SEYMOUR SMIDT. New York: Macmillan, 1960. Pp. xi+246. $6.00.

It is the contention of Professors Bierman and Smidt that all too many business executives utilize haphazard methods in making their important investment decisions. The authors also conclude that, even when an analysis of such decisions is undertaken, inferior techniques are often employed in measuring the returns to be anticipated from a proposed investment. Consequently, it is a primary purpose of this book to "help business managers analyze the profit-potential of investments in plant and equipment, marketing programs, research projects, and the like." The work is aimed at presenting "to an audience, which may be completely unfamiliar with the technical literature on economic theory or capital budgeting, a clear conception of how to evaluate investment proposals." The first four chapters are designed as a general explanation for all levels of management of the problems inherent in capital budgeting and propose a particular method of analysis. Most of the remainder of the book constitutes an elaboration of the subject matter found in the first four chapters and is designed to assist those members of a managerial staff who will prepare the investment analysis for consideration by the higher executives. Essentially, the book presents a plea for a more scientific approach to the budgeting of long-term capital investments, and it outlines in detail a technique for evaluating the wisdom of investment decisions. A final chapter is classified as a manual and includes forms to show how various computations are to be made and co-ordinated with one another.

After emphasizing the advantages of improved procedures in capital budgeting, the authors proceed to explain and emphasize at some length the superiority of the net present value of the cash flows from an investment as the appropriate measure of its worth. This basis of valuation is founded on the premise that the replacement of assets and the whole financial program of a business are designed to maximize profits. The significance of differing methods of depreciation and the impact of income taxes on investment decisions are elaborated. Cost of capital is treated, principally in terms of average cost to a company. Although the vital influence of uncertainty on investment decisions is discussed briefly, most of the data in the book necessarily assume the existence of specifically measurable quantities; calculations are made accordingly.

In attempting to apply "a sound economic approach to capital budgeting," Bierman and Smidt have written a book that, while directed to a non-technical audience, retains a style and includes a content that are more appropriate for academic use. The technical terms employed, with insufficient definition or explanation, and the language used will be much more comprehensible to students, who can ask questions about such matters in a class, than to an isolated lay reader. This reviewer feels that the work does not stand independently as a volume that will be useful to businessmen in general because of this lack of

clarity and elaboration. A basic knowledge of the literature in the field is clearly assumed as a background in much of the presentation. The treatise represents a good supplementary work for advanced students and for executive training programs but is not likely to fit into the reading schedule of a busy executive. This fact is indeed unfortunate, since the writers thought that their treatment of the subject was specifically oriented toward use by businessmen.

There is no reason to disparage the importance of careful analysis and the use of adequate measures of profitability in analyzing investments. It is also most assuredly wise to use methods as accurate as available to determine the potential profitability of financial decisions. But the reviewer doubts that the investment decisions of businessmen are generally as faulty as the authors suggest. In many cases, the "rule-of-thumb" procedure criticized is made necessary by factors of uncertainty for which there are no adequate measures for business judgment. Technical deficiencies in measurement of the worth of investment decisions then may have only marginal significance.

Efforts to co-ordinate and to put in more practical terms some of the theoretical aspects of capital budgeting are to be commended. The authors of this book, despite any deficiencies, have made a useful addition to the analysis of the subject and have emphasized the continuing need for business to apply sound economic principles.

RICHARDS C. OSBORN

University of Illinois

Capital, Interest, and Profits. By B. S. KEIRSTEAD. New York: Wiley, 1959. Pp. ix+180. $4.00.

Professor Keirstead (Toronto) claims to have developed a new and "realistic" theory of interest, taking the return on capital altogether out of the general theory of distribution. The basic or minimum rate, he proclaims, is the one set by the government on its obligations. "It forms the opportunity cost for all users of funds." "The power of the government" over the money supply "is so great that its announced price for loans cannot be disputed" (p. 7). The highest loan rate that anyone is willing to pay is equal to the marginal productivity of capital (which he dismisses on p. 47 as unrealistic: it presupposes, allegedly, a fund of perfect homogeneity and infinite divisibility). The loan and bond rates, as well as the common-stock yields, vary between these two limits, depending on the risks involved and the relative bargaining power of the parties. "Profit" is something else again; it is the reward of uncertainty-bearing, depending "on monopoly and on innovation and the correct forecasting of the future."

This eclectic contrivance is an attempt at rescuing the nonsensical (Keynesian) explanation of the interest rate as a purely monetary phenomenon. It fails to distinguish between short fluctuations and long-term trends of the rate structure. Governmental power over the money supply is absolute, perhaps, in a totalitarian economy; it is close to nil under the "classical" gold standard. Even in a paper-money system without any attachment to gold, the "real" interest rate may turn out to be very different from the one decreed by the authorities. The author's discovery, of which he seems to be proud, of a class conflict between business managers and shareholders—the former earning "profits," the latter an interest return—is another arbitrary assertion displayed in the first half of this

book. So is the contention that the stock exchange equalizes the yield of high-class common stocks with the return on non-governmental bonds.

Most of the book's second half is devoted to problems of economic growth in "conventional," meaning non-progressive, societies. It offers illuminating economic and sociological observations. But its fundamental thesis—that such backward societies cannot be rescued even by the kind of aid they receive at present—belongs in the category of "very misleading doctrines and delusions," in the words of Professor P. T. Bauer, based as they are on the myth of "an unbreakable vicious circle of poverty in the underdeveloped areas."

MELCHIOR PALYI

Chicago, Illinois

Insurance

Health Insurance. By EDWIN J. FAULKNER. New York: McGraw-Hill, 1960. Pp. xii+636. $8.75.

The author's rich experience in the field of life and health insurance is reflected in this 1960 addition to the publisher's insurance series of books. Recent decades have witnessed a tremendous expansion of plans for spreading among the many the losses which sickness and accident disability would otherwise impose on the not so strong financial shoulders of the afflicted individual, costs being what they are in these modern times. Insurance coverage of this type has been acquired by nearly 130,000,000 people, and premium income runs close to $6,000,000,000 annually. From these statistics it is clear that the author deals with a subject of real importance in modern living.

Clearly and simply the author presents his material. The introductory chapter deals with the functions of health insurance. Then follow two chapters on the terms of the health contract; one on medical expense contracts; one on special contracts; and one devoted to group, blanket, and franchise (wholesale) contracts. The evolution and development of adequate contracts have constituted one of the interesting and intricate problems in the history of health insurance. Subsequently, three chapters are devoted to structure and operational function: types of insurers, methods of distribution, and underwriting of contracts. Obviously, the financial basis of health insurance cannot be neglected. It is dependent on premium rates, on the accumulation and preservation of reserves to meet expected outlays, and on the wise handling of claims. Actuary John C. Angle supplied the two very adequate chapters on rates and reserves, and Mr. Faulkner follows with equal adequacy with a chapter devoted to the nature and significance of claims and claims adjusters in the health insurance field.

In one of the closing chapters attention is directed to the various kinds of co-operative organizations which serve the health insurance business. The author has had firsthand, high official experience in a number of these organizations, also. Another chapter is devoted to insurance regulation, taxation, and investments. The last subject is treated with relative brevity. A rather fat, but interesting, penultimate chapter is devoted to the history of health insurance.

Since the rapid growth of health insurance is a relatively recent phenomenon, this reviewer regrets that the history chapter was not given an earlier spot in the book's organization. It is an interesting story and could provide a good

setting for the chapter on expansion of insurance plans and the evolution of the insurance contract. The chapter's present placement is somewhat out of focus. Indeed, the author himself calls attention to this misplacement, where, in his final chapter on "Trends and Conclusions," he says: "The significant growth of health insurance has been so recent and so rapid that an evaluation of this business suffers from a lack of historical perspective." If this is so—and it is—this reviewer believes that providing readers with historical perspective earlier would strengthen an otherwise very good presentation of an important subject by an experienced insurance man.

Students and practitioners alike will find this text very useful. In addition to a fine bibliography of references, the author has also provided a page of selected references, a useful glossary, several pages of forms used in health insurance, and an adequate index.

WILLIAM A. CARTER

Dartmouth College

The Variable Annuity: Its Impact on the Savings-Investment Market. By CEDRIC V. FRICKE. Ann Arbor: University of Michigan School of Business Administration, 1959. Pp. xi+90. $5.00.

This is a statistical projection of the probable supply of and demand for funds in the investment market through 1975. Special consideration is given to the probable impact in this area from increased sales of variable annuities. It is interesting and scholarly. The conclusions are somewhat provocative. It is not a broad study of the many important aspects of the variable annuity, nor is it a text or reference work on the variable annuity. It is of value as a reference work on the savings-investment market.

Using Keynesian concepts as a basis for perspective, the author presents an analytical projection of the demand for the variable annuity, using 1965 and 1975 as terminal points. He then views his findings as to their probable effect on the aggregate flow of funds projected to 1975 on the basis of historical trends in the savings-investment market.

In his Preface the author states that one of the problems associated with the variable annuity—the investment of variable-annuity funds—is the subject of his investigation. This reviewer feels that he falls far short of this aim mainly because he does not attempt so broad a subject. However, on page 5 in the Introduction he states that his object is to determine the effect of the variable annuity on the supply and demand for equity securities and on the resultant price of stocks. He has contributed considerably to enlightenment on this latter aim.

The study should be of interest to those concerned with the likely demand for the variable annuity, to those interested in the capital markets, and to all important administrative people in the insurance and mutual-fund industries. With the exception of the Introduction, which this reviewer feels is very poorly done, the main body of the study is an excellent example of a scholarly approach to a statistical projection. The application of this book will probably be quite limited in teaching but may gain wide business and professional interest. It falls far short of being a book on the variable annuity, and therefore its title is misleading. Its subtitle is more accurately descriptive.

After the Introduction the author attempts to ascertain the likely demand for the variable annuity and the resulting impact on the savings-investment market. He reviews and projects the stock holdings of financial intermediaries in 1965 and 1975. He then injects the variable-annuity funds into the volume of savings and treats of their effect. Purchases of their own stock by both General Motors and Sears, Roebuck and Company constitute the basis of an interesting statistical study of the effect of an institutional investor on security prices.

The study incorporates possible weaknesses characteristic of estimates based on historical trends in growth of total assets and typical percentages of equity holdings.

The author concludes:

> Even though an industry-wide sales program for the variable annuity may begin in 1960, the variable annuity companies will remain an insignificant institution with respect to other financial intermediaries and the securities market until at least 1975.
>
> The accumulated funds of the variable annuity in 1965 will amount to $0.4 billion, which is extremely small when compared to funds of other institutions. Although the fund will reach $6.2 billion in 1975, it will still represent only 2.4 per cent of all institutional investment in equity securities.
>
> The analysis of Chapter 7 points out that an institutional investor does not influence the price of stocks even if it accounts for 25 per cent of the stock traded on the exchanges. It is highly improbable that the $1.1 billion in purchases to be made by variable annuity companies in 1975 will represent 25 per cent of stocks traded during that year. Therefore, we may conclude that the variable annuity will not influence stock prices between now and 1975.

The truly difficult problems surrounding the investment of variable-annuity funds, such as policy problems relative to proportions of creditorship and equity instruments; segregation of pay-in and pay-out funds versus income commitments; and acceptable capitalization rates, are not mentioned. This is not so much a criticism of the book as a recognition of the breadth of the problem encompassed in the author's area of investigation. It does not detract from the value of what the author has done. What he has is worthwhile.

Possibly the author's seeming shortage of perspective on the variable annuity and the areas where development is most pressing and most rewarding stems from a lack of research about the variable annuity. In his brief four pages of discussion about the variable annuity he indicates, for this reviewer, a rather limited understanding of the variable annuity. For instance, in his Introduction he seems to miss completely, or pass over lightly, many important insurance aspects of the variable annuity, such as the significance of the actuarial distribution of funds. He is short on current industry knowledge. On page 3 he mentions that two companies, the Variable Annuity Life Insurance Company and the Equity Annuity Life Insurance Company, are licensed to sell the variable annuity. Yet there are three companies, and the one he omits is Participating Annuity Life Insurance Company, which is the oldest of the three. Since this reviewer is a founder and president of the latter company, all readers of this review might in fairness be alerted for any possible undertones of bias herein.

These criticisms and the recognition of shortcomings in the book are given in a spirit of contribution from this reviewer's experience over the past few years with the actual operational and policy problems of a variable-annuity company and from a sincere desire to bring to the attention of scholars and professional people the importance of recognizing and of helping to solve the problems as-

sociated with the variable annuity. This reviewer sincerely believes the variable annuity to be a tremendously important financial and insurance instrument.

Illustrations of important areas for research in the variable annuity are the role of guaranties in the pay-out period, the role of total investment income in variable-annuity benefit calculations, and the method and extent of the life insurance industry entry into the variable-annuity field. Much work as a first approach has been done in each of these areas by at least one author, but much work still is necessary on a continuing basis.

HAROLD A. DULAN

University of Arkansas

International Finance

Debt Servicing Problems of Low-Income Countries, 1956–1958. By DRAGOSLAV AVRAMOVIC and RAVI GULHATI. Baltimore: Johns Hopkins Press, 1960. Pp. xvii+74. $2.50 (paper).

Doubtless the servicing of external debts incurred by economically underdeveloped countries (producers of primary commodities) poses many problems. But we cannot say that much will be learned about them from this little book written by two World Bank economists. Thus, in the reviewer's opinion, the value of the publication rests largely on the accompanying statistical tables, which are quite interesting.

The authors' analysis and conclusions would probably have been more extensive and less indefinite had detailed information about the underlying facts been available. In any case, treatment of the transfer problem is regrettably brief, which cannot be easily reconciled with the admission that during the 2-3 years under examination "the transfer aspect of debt service overshadows all other considerations" (p. xv).

As regards some apparent trends in the importation of *public* foreign capital by underdeveloped countries, the reader learns that between 1955 and 1958 assistance through grants increased moderately (from $1,704 million to $2,022 million), while loans doubled (from $670 million to $1,433 million). United States contribution to these capital flows rose from 52 per cent in 1955 to 60 per cent in 1958. In the latter year, United States grants and loans amounted, respectively, to $1,195 million and $776 million. (For comparison, the World Bank's 1958 participation totaled $352 million, which corresponded to an increase of 175 per cent over 1955.)

Determination of *private* international investment in the areas in question is understandably very difficult. But even if the necessary statistics were available, they would contribute little to the authors' discussion, since private lending takes the form of equity investment, which does not affect the size of public indebtedness.

It is interesting to learn that on December 31, 1958, external public indebtedness of (specified) Latin-American countries equaled $5,246 million; that of Asian, Middle Eastern, and African countries $4,874 million; of European capital-importing nations, $3,372 million; and of other Western European countries, $12,885 million. Service payments on the aggregate debt amounted in 1958 to $2,101 million, of which $1,531 million were repayments of principal and $570 of interest. The authors state that debtor countries have adopted quick

repayment schedules, thus increasing the vulnerability of their balances of payments.

The burden of debt servicing is measured by the ratio of service payments (profit, dividends, interest, amortization) to external receipts. The ratio varies from year to year and appears to be related directly to the volume of foreign-owned capital stock. For illustration, in 1958 the public debt service ratio equaled 21 in Colombia, 13 in Brazil, 3.5 in Indonesia, 1.7 in India, and 0.2 in the United Arab Republic, etc. For European debtors, the average ratio was 3.3.

While many factors are responsible for the debt-servicing capacity of less developed countries, the most important variables are the rate of saving and the rate of growth in export income remaining after service payments. Table XIV in the book gives dollar amounts of the 1958 external public debt service payments for various countries. The data disclose that the above-named countries, among many others, expended the following sums on debt service: Colombia, $183 million; Brazil, $183 million; Indonesia, $24 million; India, $26 million; and UAR, $1.6 million.

The limited scope of this monograph does not minimize its usefulness.

KAREL HOLBIK

Boston University

The Capital Market of India. By S. L. N. SIMHA. Bombay: Vora & Co., 1960. Pp. xi+300. $5.00.

Mr. Simha has expanded three lectures into a book. The title limits coverage to the capital market, and it is a fair statement of scope. The title misleads, however; the book is descriptive of institutions in the capital market but falls short of description of the market itself. Readers in the United States can obtain from Simha's work knowledge of the operating characteristics of Indian financial institutions and data concerning their operations more readily than heretofore.

A large proportion of the statistical data are presented in a single chapter (3), "Growth of Capital Market—Statistical Analysis." Annual statistics of corporate activity, new securities issues, savings, and government borrowing are included. Although the tables cover differing time periods, most series cover the period 1950–58. Subsequent chapters also contain statistical data. These chapters, however, are more concerned with description of legal, social, and customary features of institutional organization. They expand the comments of the introductory chapters.

Comparisons and contrasts with practice in this country are easy to make with the amount of detail the author provides. Parallels are frequent. However, students of investment finance, for example, may find description of the "carry-over" or *budla* operation in stock trading an interesting contrast to the practices of margin trading in the United States. By contrast, in the same chapter, a weakness of the book is apparent in lack of information about over-the-counter markets and the activities of brokers and dealers in them.

The legal and economic features of governmental institutions are discussed in chapters 6 and 7. Again, parallels with institutions of the United States are clear. Rapid, centrally directed industrialization in India has, however, given both more prominence to governmental activity and more emphasis to creation of

governmental agencies in the capital market than is characteristic of the United States. Readers in the United States may find concepts of capital banking, excepting small-business finance, unusual.

Students of corporate finance should find interest in discussion of the activities of "managing agents" (in chap. 4). Individuals and companies engage in the business of managing other companies. The managing agents also participate actively in financing concerns managed. Participation is direct—through loans and purchase of capital stock—and indirect—through guaranty of credit, underwriting, loans from one managed concern to another, and canvassing. Parallels with holding-company organization are obvious, although managing agents seldom hold absolute control.

Simha deserves criticism, perhaps, for giving more prominence to "Legislative Protection to Investors" than his other subjects. He does this by presenting the reader to this topic in the second chapter of the book, the first chapter of the body of nine composing the basic text. One may speculate that this peculiar outline reflects the origin of the book: that the first three chapters are the lectures, although no identification is given by the author. These three chapters have unity. They provide a balanced, integrated description of the entire subject. Adding chapters to this arrangement, however, detracts from interest and removes from the places of most relevance discussion of opportunities as well as restraints in the capital market.

Simha's work in other respects so clearly presents information of interest and value to students of money and credit that this criticism may be overlooked. He surely deserves praise for the contribution he has made to the literature of financial institutions and financial activities.

LORING C. FARWELL

Northwestern University

Gold and the Dollar Crisis: The Future of Convertibility. By ROBERT TRIFFIN. New Haven: Yale University Press, 1960. Pp. xiii+195. $4.75.

We are told in the Preface (p. ix) the basic themes of the book: "Gold production is unlikely to increase sufficiently in the foreseeable future to provide an adequate supply of liquidity to an expanding world economy; and the haphazard use of national currency holdings as a supplementary form of reserve accumulation cannot but undermine, more and more dangerously as time goes on, the key currencies used for this purpose and, by way of consequence, the world monetary superstructure erected upon them."

In the Introduction Professor Triffin includes a statement which he made to the Joint Economic Committee of the 87th Congress on the International Monetary Position and Policy of the United States (Washington, October 28, 1959). He points out how our exports of capital and economic aid have been sustained throughout this whole period of ten years at levels in excess of our current account surpluses and that the gap has been financed by a deterioration of our net external reserve and liquidity position, through gold losses and increasing short-term indebtedness abroad (pp. 6, 7).

Since our commodity exports have exceeded our commodity imports during this time, I cannot agree with Triffin that the downward trend in our current account with Western Europe points to the persistent and growing deterioration

in our competitive position with this area. If we stopped trying to support the world and got our allies to share more in joint defense costs, our current account would come into balance. He thinks that we should re-examine with our allies the problem of a fair allocation of our joint defense costs (p. 8).

Triffin's proposal that we strengthen our competitiveness in world trade, arrest creeping inflation, press more vigorously for the elimination of remaining discrimination against our goods, press for enlarging our foreign markets and expanding sales abroad, and get European countries to assume their fair share of financing multilateral assistance programs suggests that he has had an influence on our governmental policies because that is exactly our government's policy today.

According to Triffin, gold has ceased to provide more than a fraction of the minimum requirements for the preservation of adequate reserve and liquidity levels. Most countries have been willing to accumulate a large part of their monetary reserves in the form of foreign exchange—sterling and dollar balances—along with gold. This solution—known as the "gold exchange standard"—is bound to undermine the international liquidity position of the currencies used as reserves by other countries (p. 8).

His solution: internationalize the foreign-exchange component of world monetary reserves, bar the use of dollars and sterling as monetary reserves by other countries, and give all countries the choice of keeping in the form of international, gold-convertible, deposits at the International Monetary Fund any portion of their reserves which they do not wish to hold in the form of gold. Attach to these reserve deposits exchange-rate guaranties that would make them a safer medium for reserve investment than any national currency holdings which are exposed to devaluation, inconvertibility, blocking, or even default by the debtor country. Let them earn interest at a rate to be determined and varied in light of the Fund's earnings on its loans and investments.

To guarantee the system against sudden and unpredictable shifts between gold holdings and Fund deposits, all countries should hold, say, 20 per cent of their gross monetary reserves in the form of Fund deposits. This would substitute for the present complex and rigid system of national quota contributions to the IMF capital (p. 10). Make the IMF a central bank for central banks (p. 152).

His statement (p. 89) concerning the waste of resources in mining gold and placing it in deep holes makes this reviewer shake his head. What gives us greater confidence in our money than the gold at Fort Knox?

I am not an alarmist as to a coming crisis, as Triffin is. I believe that sound economic policies on the part of governments and the use of fractional reserves will enable us to get along on our present gold supply. Government officials and students of money and banking and of foreign trade should read the book. It is food for thought.

MURRAY W. SHIELDS

University of Florida

Investments

Investments: Principles, Practices, and Analysis. By DOUGLAS H. BELLEMORE. 2d ed. New York: Simmons-Boardman, 1960. Pp. x+898. $7.50.

This is a revision of an earlier work published in 1953. The revision is not superficial; tables and charts have been updated and the material considerably

rearranged. There is some change in emphasis. This is especially evident in the rather extensive section on security analysis. The earlier edition dealt with this subject largely in terms of security groups—industrials, railroads, electric utilities, etc. This necessarily involved some duplication in the discussion of such matters as depreciation and depletion, inventory valuation and consolidation, and capital structure. In the present volume, topics that are basic to analysis of more than one security grouping are considered in separate chapters, although the peculiar problems of analysis of industrials, railroads, utilities, investment companies, banks, and insurance companies are separately considered.

The book is divided into four parts. Part 1, consisting of fifteen chapters, covers investment principles and is descriptive and quite conventional. Included are the usual chapters on demand for investment funds and sources of investment funds, as well as chapters describing the operation of stock exchanges, investment banking, investment instruments, and taxation. The treatment of the structure of interest rates and their relation to stock yields in chapter 4 is especially well done. Part 2 includes four chapters dealing with federal, state, and local government securities. Part 3 deals with security analysis and comprises nearly half the book. The final section is a single chapter dealing with investment policy for individuals and institutions. But investment policy is not neglected. While only one chapter is identified as dealing with this subject, there is a thread of investment policy that runs throughout the book. Bellemore does not limit discussion of this important subject to this final chapter.

The book is a worthwhile addition to the literature of investments. It is, without doubt, the most complete book available and is well designed to serve not only as a college text but also as a useful reference work for adult laymen. Moreover, Bellemore has introduced types of analysis and data not found in other texts. While only an elementary knowledge of accounting is assumed, the development and presentation of accounting principles that underlie the accounting statements is a highlight of the book. While the author presents no "magic formula," his treatment of the timing of investment transactions in chapter 14 is better than average. The discussion of physical data ratios and adjustments in per share earnings in chapter 27 is excellent. The principle that the price at which a security is available is an essential ingredient in investment decisions receives major emphasis throughout the book.

The book is well adapted to either a long or a short course in investments. With a little supplementing, it would make sufficient material for a year course; on the other hand, the first fifteen or twenty chapters, together with the final chapter on investment policy, are a sufficient basis for a short course in the field.

It is possible, of course, to find fault with a book, especially one as complete as this one. Many of the tables would seem to contribute little to the development of the subject. Examples include Table 155, showing the changes in member-bank reserve requirements since 1917; Table 65, showing the denominations of United States government marketable securities; and Table 100, showing current assets and current liabilities of United States corporations, 1949–58. In the chapter dealing with United States government securities the author presents some interesting formulas for calculating the yield of Treasury bills when held for a given number of days, purchased on one yield basis and sold on another; or the number of days bills must be held to attain a given yield, if bought on one basis and sold on another basis. He does not, however, deal with the simple, but important, matter of translating a yield basis to a price.

But these are matters of small importance and do not detract from the excellence of the book. It is a first-rate presentation of the principles of investment and security analysis. It may be surmised that the chief deterrent to wide adoption as a class text will be the disposition on the part of some instructors to choose a somewhat briefer text and then use Bellemore as a source of lecture notes.

O. K. BURRELL

University of Oregon

Introduction to Investments. By JOHN C. CLENDENIN. 3d ed. New York: McGraw-Hill, 1960. Pp. vii+689. $7.50.

This is the third edition of a textbook for use in an introductory college-level course in investments for students interested in personal or family investment problems. The principal focus is on securities investments, but chapters are also included on other aspects of a long-range investment program, such as life insurance, savings institutions and trusts, and real estate and mortgage investments.

The book begins appropriately with chapters on investment objectives that must be weighed by the investor and on the basic determinants of investment values. A group of chapters summarizes the organization and behavior of the securities markets. The two longest sections of the book discuss the characteristics and valuation of preferred and common stocks and corporate bonds and analyze the securities of corporations in various major industries.

A briefer section discusses United States government securities and state and local government bonds. Here, as in some other sections, the book suffers from inadequate updating of the descriptive material. The reader is left with the impression that the Federal Reserve currently assumes responsibility for maintaining relative stability in the prices of long-term government bonds and that government bonds will almost always be more stable than private ones, fluctuating sharply on occasion only in response to Federal Reserve action. There is no recognition of the usual Federal Reserve practice of confining open-market operations to short-term securities, preferably Treasury bills, or of the striking difference between supporting the long-term market and correcting a disorderly market, and no mention of the kind of speculative activity that occurred in mid-1958.

The final section of the book discusses income, estate, and other taxes which affect investment policy and presents suggestions for developing a lifetime financial plan and administering a personal portfolio. These suggestions seem practical and comprehensive, with one major exception. Like the earlier material on life insurance, they give little consideration to the growing importance of pension income and the effect that an individual's expected pension benefits should have on his financial planning.

Clendenin's book, while planned as a textbook, contains a great deal of background information suitable for the general reader interested in the major characteristics of various types of investments, the structure of the markets in which they are traded, sources of statistical data about them, and lists of reference works. As a textbook, it covers so wide a range of topics that, as Clendenin intended (and as is evident from the nature of the questions and problems listed at the end of each chapter), it would need to be supplemented

with outside reading and full discussion of the implications of the basic material presented. The student would probably also appreciate more information than is given on financial developments of the postwar period.

ELEANOR J. STOCKWELL

Board of Governors of the Federal Reserve System

Introduction to the Theory of Interest. By JOSEPH W. CONARD. Berkeley: University of California Press, 1959. Pp. xx+375. $7.50.

This volume, while called an "Introduction" to the theory of interest, is a definitive work within the scope set by the author. The task which he set to himself, namely, "to make available in one book the most helpful elements in many writings that deal with the knotty problems of interest theory," has been completely achieved. The book is direct and outspoken and comes to grips with many controversial problems. Thus, for example, in its introductory chapter (p. 3), in mentioning the impacts of general credit control as contrasted with those of qualitative control, the author makes this apt remark: "After all, if monetary policy is effective it squeezes or relieves somebody, and who that somebody is may matter." It is to be hoped that many economists who have opposed any form of qualitative control will ponder over this statement.

The volume is divided into three parts. Part I deals with non-monetary theories of interest. It reviews concisely and in considerable detail the work of Boehm-Bawerk, of Irving Fisher, Knight's theory of interest, and the standard works of other famous economists. The analysis is precise, and the author clarifies many controversial points to the full satisfaction of the reader. This section will be of great value not only to graduate students but to many teachers of monetary theory.

Part II deals with monetary theories of interest. The chapters dealing with loanable funds and the liquidity preference series are of particular interest and well presented. In comparing the loanable-funds theory with that of liquidity preference the author states accurately on page 232: "One is that the loanable-funds theories are typically described with reference to flows over a period of time, whereas liquidity-preference theories are stated in terms of stocks at a moment of time. A second is that loanable-funds theories are usually stated in terms of supply and demand for securities, whereas liquidity-preference theories are stated in terms of demand and supply for cash balances." This statement is a sample of the clarity of expression of the author.

Part III analyzes the term structure of interest rates. The chapter dealing with empirical tests of the theory of rate structures is well stated and of considerable interest. However, it is doubtful whether it will be of much value to those who are interested in seeking clues to determine the future trend of interest rates. It is to be hoped that Conard will continue with the searching analysis and that, before long, the remaining phases of this vital topic will be presented by him to the public.

MARCUS NADLER

New York University

Investments. By DAVID F. JORDAN and HERBERT E. DOUGALL. 7th ed. Englewood Cliffs, N.J.: Prentice-Hall, 1960. Pp. x+582. $7.95.

Professor Dougall's substantial revision of this well-known textbook should maintain its popularity among those who have been favorably impressed with previous editions and increase its appeal to a broader group of teachers, as well as to lay investors. The new edition retains the five major divisions of the previous edition: (1) "The Economics of Investment"; (2) "Investment Media"; (3) "Investment Mechanics"; (4) "The Investment Program"; (5) "Analysis of Securities." However, it does much more than bring financial statistics up to date, although this in itself is a useful contribution in our rapidly changing universe of securities. It also contains a rearrangement of chapters and topics to provide a more logical thread of continuity for the student taking the basic course in investments. The most significant change in the new volume is the addition of new material relating to three important areas: the nature and scope of investment markets, the analysis of life insurance stocks, plus principles and methods for the valuation of the major classes of securities.

The first of these additions is a lucid discussion of the demand and supply of investment funds, which is implemented by a brief, but incisive, analysis of the pattern of securities yields and the changes brought about therein by the dynamics of business conditions, Federal Reserve policies, etc.

The inclusion of a section relating to life insurance stocks removes a gap existing in the previous edition and reflects the sharp increase in investors' interest in this area during the 1950's. The author is to be commended for presenting a procedure for the valuation of these stocks, even though he acknowledges that "there are no firm rules of thumb" in this area.

The third major addition—a section dealing with the valuation of various types of securities—receives this reviewer's award as Dougall's most significant contribution to the new edition. The reader may disagree with certain of the principles of valuation as presented but cannot fail to comprehend the author's assumptions and logical presentation. For example, "Insofar as valuation is concerned, all securities have one thing in common: they are worth the present value of their expected future income" (p. 337), with bonds a partial exception. Also, "a share of stock is worth what it can earn, not what was spent for the assets it represents" (p. 341). Thus the author does not hesitate to take a position, although he presents objectively the necessary qualifications and alternative viewpoints. The specific attention given to the valuation of shares with rapidly rising earning power will prove useful to the many growth-oriented investors of today. This excellent section on valuation of securities unfortunately encompasses only eight pages.

Dougall has made a valuable contribution in his revision of this widely adopted text. It is well suited for a semester course in investments which requires a text containing broad coverage of descriptive areas such as the mechanics of investment, types and characteristics of securities, etc. Although the coverage of the analytical and operational areas of investments has been expanded in this revision, the previous emphasis on descriptive and substantive material remains dominant. Consequently, those who prefer to concentrate on such areas as portfolio management and valuation problems may wish to supplement this text with specialized readings and cases.

ALDEN C. OLSON

Michigan State University

Money and Banking

A Proper Monetary and Banking System for the United States. Edited by JAMES WASHINGTON BELL and WALTER EARL SPAHR. New York: Ronald Press, 1960. Pp. viii+239. $6.00.

It is refreshing to read a volume directed at the practical political and economic controversies of our times, yet capable of stating a position simply, without obfuscation or platitudinous pap. Comforting, also, is the discovery that at least one discipline with practical applications has some experts other than those who are "expert" merely by virtue of uncritical favoring of current developments. Seven well-known monetary scholars of international repute—Frederick A. Bradford, Donald L. Kemmerer, Fred R. Niehaus, Melchior Palyi, Robert T. Patterson, Clyde W. Phelps, and G. Carl Wiegand—have joined with Professors Bell and Spahr to produce a clear-cut appeal for adoption of a gold-coin standard by the United States.

The contributors, writing in their respective areas of greatest competence, have attempted to analyze what they consider to be the violations of principle and errors of practice, committed in and by the United States over the last 27 years. The subject matter includes virtually the entire monetary and banking structure—from the economic and legal principles involved in establishing a monetary standard to banking functions, the role of central banks, international financial mechanisms, other financial institutions, and the ubiquitous influence of government, for good or evil, on all aspects of money and finance.

The words "proper" and "sound" appear frequently in the text, but, despite a lack of extensive, formal definition, the reader is never left in doubt as to the authors' meaning. The authors advocate a gold-coin standard, a dollar equal to $15\frac{5}{21}$ grains of gold nine-tenths fine, and the necessary facilitating institutional arrangements because they believe it to be most conducive to "a republican form of government, with a check and balance system in government organization, under which major purposes are to foster private enterprise and human freedom" (Spahr, p. 45).

A review, unfortunately, is too limited in scope to permit detailed comment on the individual contributions. As expected, they are of uniformly high quality. The reviewer found particularly worthy of special notice the fundamental statement of a proper monetary standard by Professor Bradford (pp. 1–26); the vigorous suggestions for reform of the Federal Reserve structure by Professor Kemmerer (pp. 52–104); the succinct, yet sophisticated, expression of the relationship of monopoly, full employment, credit policy, and inflation by Professor Phelps (p. 132); and the eloquent pleas of Palyi and Patterson for preserving a free society.

If this book receives the attention it well deserves from both those who agree and those who disagree, it will be read and read again by anyone having even a slight interest in our country's monetary and financial well-being. Perhaps it can kindle that great debate from which we may yet learn before it is too late. As Patterson phrases it, "Only the deepest insight of the nation's ablest economists and government officials may, perhaps, enable us to avoid the catastrophe of either a flight from the dollar, a severe depression, or the loss of freedom" (p. 192).

The reviewer wishes he could confidently predict that we shall have courage enough to follow the course that these nine wise men have prescribed.

ARTHUR KEMP

Claremont Men's College

Money and Income—an Outline of Monetary Economics. By A. C. L. DAY and STERIE T. BEZA. New York: Oxford University Press, 1960. Pp. xv+634. $7.50.

Money and Income has been written in the best tradition of textbook writing. The authors carefully review the present state of monetary theory and the role of monetary institutions in the functioning of the economy, but they do not slavishly follow their original sources or the interpretations usually given in other currently used textbooks. Rather, taking the ideas from the literature of monetary economics, they present their own synthesis and, in the process, provide a number of insights that will be useful to scholars working in the field.

The volume represents a revision and adaptation for the American student of A. C. L. Day's *Outline for Money.* Following a useful introductory statement, in which the functions of money are dealt with analytically rather than descriptively, the authors turn to an extensive statement of modern monetary theory. In this section they maintain a high level of rigor by assuming a two-sector, single-security type economy. They not only develop the comparative statics of employment theory but also, using process analysis, trace the dynamic adjustments of the system to changes in saving and investment decisions. The interest theory is Hicksian and is effectively integrated into their macroeconomic model of the economy.

In dealing with the American monetary institutions in Part 3, the authors are particularly successful in giving the student an understanding of monetary institutions without overwhelming him with a detailed history of these institutions. The Federal Reserve is treated as the American variant of the traditional central bank found in all money-using economies. Perhaps most noteworthy is the fact that the authors never permit their discussion of American monetary institutions to become primarily descriptive. They are careful to explain how the introduction of banking institutions, government transactions, and business savings modify their theoretical model. Indeed, with real boldness, in view of the gaps in our knowledge, they attempt to show how these monetary institutions can be fitted into traditional interest-rate theory to explain the structure of interest rate.

Part 4, which deals with the inflationary process, does much more than summarize the literature. The authors' handling of the "defensive reactions" of various groups to price changes breaks new ground—and their argument deserves the careful attention of scholars. In dealing with the analytical problems of stabilizing the level of income (Part 5) they have been able to maintain the same high level of theoretical rigor. After discussing the factors underlying the rate of investment and the way variations in investment spending lead to a typical trade cycle, the authors turn to the instruments available to modify the cycle. Their discussion of the theory of income stabilization, given lags, and the probability of forecasting errors is particularly interesting. Not only do they

present new materials, but they highlight the need for continued work in this area.

The last two hundred pages are devoted to an analytical discussion of international financial institutions and the problems arising out of the settling of international balances. As in the domestic section, a careful synthesis of modern theory is presented, using employment theory and multiplier analysis for tracing out the interrelations between the various economies. After discussing at some length the variety of means used by the Western economies to settle their international balances, the authors trace the evolution and development of international monetary institutions from the gold standard of the nineteenth century to the problems involved in the management of these institutions in the late 1950's.

Because this is a theoretically oriented text, it has been necessary to face the difficult problem of achieving the proper level for the American undergraduate student. By means of asterisks, certain chapters and sections have been indicated as material which could be omitted as too difficult. This reviewer would like to think that the authors have, in this way, solved the problem of "level," but he suspects that only the best undergraduate students will be able to master the bulk of this text. The reasoning is "tight." Such statements as "If the sum of the home elasticity of demand for foreign goods and the foreign elasticity of demand for home goods is less than unity, the balance of trade moves against the country whose exchange depreciates" will be extremely difficult for most of our undergraduate students. The authors proceed by developing a simple, but rigorous, theory under limiting assumptions and then explore the effects of removing these assumptions. Again, it is my experience that undergraduate students seldom understand this procedure.

This is a first-rate text and deserves wide reading.

E. T. Weiler

Purdue University

A Program for Monetary Stability. By Milton Friedman. New York: Fordham University Press, 1960. Pp. x+110. $2.75.

During most of the 1930's and 1940's, monetary controls were generally discredited. Except for the purpose of monetizing the federal debt at fixed low interest rates, fiscal and direct controls were the favored means of price and economic stabilization. The threat of inflation in the postwar period revived interest in the use of monetary controls. The Douglas and Patman hearings and reports (which led to the "accord" of 1951), the investigations of the Flanders and the Byrd committees, and the later Patman and Douglas committees dealt extensively with monetary problems. In his 1957 "State of the Union" message, President Eisenhower suggested that another national monetary commission such as the Aldrich Commission of 1908 (which led to the foundation of the Federal Reserve System) be established to re-examine our money and banking structure, appraise how it works and what is wrong with it, and submit a report on how to improve it. Although Congress did not act on this suggestion, it did attract the attention of individuals and of private and quasi-public groups.

The Economists' National Committee on Monetary Policy promptly projected a report, to be prepared by nine of its members, entitled *A Proper Monetary*

and Banking System for the United States. The report was published early in 1960. The American Assembly's October, 1958, session later materialized in a book, *United States Monetary Policy: Its Contribution to Prosperity without Inflation.* In May, 1958, the Committee on Economic Development, with almost a million and a half dollars of aid from foundations, embarked on an ambitious three-stage program, which it hopes to complete early in 1961. Other examples of group research could be mentioned—e.g., National Bureau of Economic Research and the Workshop in Money and Banking at the University of Chicago. It was in connection with his research in these two organizations that Milton Friedman developed most of his proposals for monetary reform. The book itself is a revised and expanded version of the Millar Lectures at Fordham University, delivered in October, 1959.

The organization of the book is simple and logical, the style extremely lucid and readable. In proposing measures of reform, the author examines our present money and credit structure to see how it works, the role that government should play, and what criteria should guide the use of powers granted the monetary authorities.

In chapter i, "The Background of Monetary Policy," he reviews the major economic fluctuations before and under the Federal Reserve System and points out that in every case they were accompanied by monetary disturbances and sometimes by political upheavals, that these were largely of independent origin, and that many were induced by government intervention. The problem, therefore, is to prevent monetary arrangements themselves from being the cause of economic instability.

The Federal Reserve System and the Treasury are the most important, although not the only, government agencies having powers over money and credit. In chapter ii, "The Tools of the Federal Reserve System," the author examines the instruments available for the control of the supply, use, and cost of credit. He maintains that discounting, discount rates, and variable reserve requirements are difficult and ineffective and should be eliminated; so should margin requirements and other selective controls. Only open-market operations should remain as the sole instrument of monetary control.

In chapter iii, "Debt Management and Banking Reform," the author points out that debt management is the one major tool of monetary policy outside the direct control of the Federal Reserve System. He maintains that it should be assigned to the Federal Reserve and that the Treasury be required to seek all the funds it needs directly from the Federal Reserve. As to banking reform, the defects of the present fractional reserve commercial banking system should be remedied by requiring 100 per cent reserves against all deposit liabilities, demand and time. (The revival of the 100 per cent money idea is modified to the extent that the Federal Reserve pay interest on member-bank deposits at the Fed.) Further control of the credit system would be assured by abolishing the 25 per cent gold reserves now required against Federal Reserve notes and deposits. Our internal monetary policy should be freed from foreign influences by abolishing the fixed gold price of $35 per ounce. Since all money would in effect become a government obligation, there would be no need of federal deposit insurance. These are radical recommendations, and the author admits the improbability of their adoption; hence he presents alternate proposals.

Chapter iv, "Goals and Criteria of Monetary Policy," answers the question: Where should we go in this streamlined model or in the old creaking one if proposed reforms are not adopted? Our practice in the past has been to give monetary authorities discretion in achieving very vague and broad objectives, such as "accommodating commerce and business," sound credit conditions, price stabilization, full employment growth, and the like. The author prefers to grant monetary authorities increased powers, safeguarded, however, by defining their specific responsibilities and the rules and guides for their action. After exploring various popular goals, the author finds the stock of money to be the best guide (which is related to the price level, not to the level of interest rates). The Federal Reserve could control the supply of money through its open-market operations. He finds that the stock of money should be increased at a fixed rate of 4 per cent per annum to mitigate major economic fluctuations and attenuate the minor ones.

With the adoption of these reforms, Friedman believes that we would be insured against major monetary disturbances and notably reduce short-term monetary uncertainty and instability and that these reforms would offer a wider scope for private initiative and enterprise in the allocation of capital.

This book is both surprising and disappointing. It bristles with suggestions, brilliant analysis, and numerous recommendations—some old, some new, some deserving wide support, others that are provocative, radical, even brash. One would have to look far to find so much controversial material in such small compass.

An arrangement which would channel all Treasury borrowings through the Federal Reserve, which in turn could monetize debt without reserve requirements or other restraints, will appear to some economists as debt inflation with fiat money, pure and simple. A revival of Irving Fisher's 100 per cent money (of the 1930's) will provoke protest from those who do not care to see an emasculation of commercial banks, modified as the proposal is by interest payments on that part of the reserves held in the Federal Reserve banks. Other economists will take exception to the elimination of the 25 per cent gold reserve requirement and of the fixed $35 gold price; some will see dangers in the Federal Reserve banks issuing their own securities, based primarily on government debt; and still others will strongly object to a 4 per cent annual growth in the money supply, determined by open-market operations, which, under Friedman's scheme, may bear a direct relationship to government financing but no direct relationship to the production and exchange of goods and services in the market.

Many of these proposals will be opposed by economists who, like Friedman, would classify themselves as "new liberals" because they hesitate to assign to the government functions that can be performed through the market and they oppose the substitution of coercion for voluntary co-operation and the threat to freedom which such control holds, not only in money and credit, but in other areas as well. Friedman's extreme proposals, if adopted, might well defeat their own ends. Nevertheless, despite the many disagreements from conviction, everyone who reads this book will admire the ingenuity and mental acuteness displayed by a very competent economist.

JAMES WASHINGTON BELL

Northwestern University

Money in a Theory of Finance. By J. G. GURLEY and E. S. SHAW, with a Mathematical Appendix by ALAIN C. ENTHOVEN. Washington, D.C.: Brookings Institution, 1960. Pp. xiv+371. $5.00.

This is an important piece of work. It should and no doubt will be read and studied by all serious students of money and finance, for it integrates a neglected aspect of the subject—non-monetary financial institutions and usages—into the main body of economic analysis. In a succession of equilibrium and growth models which are in the neoclassical tradition and which differ in the complexity and sophistication of their assumed financial system, the authors show that the behavior of the economy depends on its financial attributes. However, without belittling this achievement, the true significance of this volume lies in the way it indicates that further research on the relation between financial practices and the functioning of the economy is necessary.

The extent to which this book breaks new ground is shown by recalling how non-monetary financial intermediaries (mutual savings banks, savings and loan associations, life insurance companies, etc.) are treated in a typical textbook on money and banking. Often these institutions are not mentioned. If they are mentioned, it usually is in a catch-all descriptive chapter which is best interpreted as an aside to the main argument. The reason for this treatment is that in the various accepted monetary theories the existence and operations of these institutions do not affect the behavior of the economy in any essential way.

The fundamental thesis of Gurley and Shaw is that the equilibrium and growth characteristics of an economy depend on financial institutions and usages. Their argument is based on a number of postulates which differ from those that are usually made. One of these is that the financial interrelations within the private sectors should not be netted out, i.e., that money is money, regardless of the assets held by the banking system. Hence the quantity of money and of money substitutes depends on the extent to which intermediation occurs, and the neoclassical real-balance effect operates upon the result of the intermediation process. Unfortunately, Gurley and Shaw do not examine under what circumstances such a "balance-sheet illusion" will be operative.

The authors also postulate that there is a "diversification demand" for particular types of assets by wealth owners; the various decision-making units are supposed to prefer diversified to specialized portfolios. For example, if, from an initial equilibrium position, the quantity of money is increased by operations involving private securities, the ratio of money to private securities in the portfolios of ultimate units will now be too high, even after the price level adjusts to the new quantity of money. This portfolio imbalance will tend to drive down the interest rate and increase the pace of investment; "it has stimulated real growth of capital and income" (p. 147). It is particularly unfortunate that this portfolio diversification effect, which is vital to the validity of the entire analysis, is postulated rather than derived. The mere assertion that this effect exists is substituted for an examination of what makes portfolio diversification desirable, what determines the limits to which it will be carried, and how this diversification demand reacts to the other things that are always changing in economic analysis.

As a parallel to the asset holder's portfolio diversification demand for money and the liabilities of financial intermediaries, there is a "diversification supply" effect operative on the issues of private securities; there is a preferred liability

structure for a firm; and investment expenditures are not independent of the available financing techniques. Once again this effect is postulated rather than derived. The unwillingness of the authors to probe into the foundations of this relationship is unfortunate, for if they had, they might have made a real contribution to our understanding of how corporate finance affects the behavior of the economy.

All three of the above postulates—the gross money postulate and the two diversification postulates—are related to the uncertainty that is inherent in economic processes and the desire of the various private economic units to be protected against various aspects of this uncertainty. Gurley and Shaw, by postulating rather than deriving these effects, have finessed a chance to make a deep contribution to our understanding of how financial interrelations, which affect the functioning of the economy, depend on the extent of and the attitudes toward uncertainty.

Another, not unrelated, defect of this effort is that the authors concentrate on problems of equilibrium and growth to the virtual exclusion of any consideration of the relation between financial arrangements and economic stability. Whether financial intermediation may abet growth at a price of increased susceptibility to serious economic instability is not investigated. To the extent that asset and liability diversification is undertaken in order to protect the owner or issuers of the security from uncertainty associated with the cyclical behavior of the economy, the postulated diversification effects depend, at least in part, on the existence of cyclical instability.

In considering central banking, the authors emphasize the role of the central bank as a supplier of reserves through open-market operations. The central bank's role as a lender of last resort in a world with a complex financial structure is not considered. Basically, the existence of financial intermediaries depends on their ability to create liabilities which economic units hold in preference to the assets that the financial intermediaries themselves hold, and this preference is reflected in the fact that financial intermediaries "make on the carry." A significant aspect of this preference is that financial intermediaries' liabilities are more liquid than their assets.

In order to protect their ability to meet these claims, financial intermediaries must have some alternative source that can finance their position whenever their usual source is temporarily not available. Therefore, every financial intermediary (except "ultimate" units like the central bank itself) must have a "lender of last resort." The relation between the various *de facto* "lenders of last resort" and the central bank is a determinant of the conditions under which a serious financial disturbance may occur. In a world of complex and ever changing financial interrelations it may very well be true that the most significant aspect of central banking is the position of the central bank as the lender of last resort.

An aspect of Gurley and Shaw's work which has attracted considerable attention is their emphasis upon the similarity between money and the liabilities of non-monetary financial intermediaries. There is, of course, a great deal of similarity between them with respect to the postulated gross real balance, asset diversification, and liability structure effects. However, this similarity does not affect the basic difference between money and the other financial liabilities, which is that the quantity of money in existence, as long as money is the medium of exchange, is determined by the monetary system, whereas the quanti-

ty of the liabilities of financial intermediaries in existence depends on the behavior of the public. However, the existence of a complex structure of financial institutions does make monetary control by the central bank more difficult, for, by increasing the opportunities for portfolio changes, it tends to make velocity more volatile.

Alain Enthoven's mathematical appendix is a great help, in that it makes many of the ideas of the text more precise. The clarity and usefulness of the volume would have been increased if the mathematical appendix had been more closely integrated with the text.

There are no detailed references to the literature in the main body of the text. I cannot help feeling that the volume would have benefited if the authors had been forced to identify in some detail the relation between their ideas and other ideas on these subjects.

HYMAN P. MINSKY

University of California, Berkeley

The Federal Reserve System. Edited by HERBERT V. PROCHNOW. New York: Harper, 1960. Pp. xiv+393. $6.50.

Anyone who is interested in up-to-date material covering all aspects of the Federal Reserve System should find this book more than welcome. The scope is even broader than the title suggests. The book includes chapters on American banking prior to the establishment of the Federal Reserve System and on foreign central banking, and the three historical chapters on the Federal Reserve System present a rather complete economic and financial history of the periods covered. Other chapters cover the organization and powers of the System, Federal Reserve regulations, the Reserve bank statement, the relationship between monetary policy and economic stability, the various instruments of credit regulation, effects of Federal Reserve policy on commercial banks and on other financial institutions, the international role of the Federal Reserve System, and service and supervisory functions. The authors have been well selected, and many of them are able to draw on wide experience in the Federal Reserve System.

If any criticism is to be levied about the general organization and emphasis of the book, it concerns the tendency to concentrate too heavily on historical developments and problems at the expense of a fuller discussion of current means of operation and of problems and controversies of the present or the not so distant past. I am in complete sympathy with the decision to bring together various changes in Federal Reserve organization and operations and to relate them to other economic and financial developments of the period, and the historical chapters, particularly that covering the 1930's, are excellent. The chapters dealing with the instruments of credit policy are also organized along historical lines, however, and they devote considerable attention to such matters as opposing theories of member-bank borrowing of the 1920's and 1930's and proposals for reserve reforms designed primarily to meet problems of the 1930's and the immediate postwar period.

There is, of course, always a question as to how far a book of this type can go in considering current policy formulation and problems. One wishes, however, that more attention had been paid to at least the factual aspects of such questions as the following: the frequency of discount-rate changes; the relation-

ship between the discount rate and the various market rates of interest, and cyclical variations in the relationship associated with changes in the volume of indebtedness and in bank portfolio composition; the effect of a prolonged period of credit tightness on the frequency with which individual banks have been in debt and on their willingness to borrow further; the use of changes in reserve requirements to adjust to cyclical changes in reserve needs; and the factors affecting the definition of an appropriate level of reserve requirements.

The book might have benefited from more general discussion of the interrelationship of the various instruments of monetary policy, although some aspects are covered in the excellent chapter on open-market operations, as well as in the general historical chapters. Some recognition would also have been desirable of the influence of certain Federal Reserve actions that are not designed to be administered contracyclically—particularly, bank examination policy and the administration of the discount function under Regulation A—upon the effectiveness of monetary policy. A major omission is the failure to include any material on economic intelligence within the Federal Reserve System.

The discussion of the effect of Federal Reserve policy on commercial banks is particularly welcome in its coverage of the mechanism of adjustment and the varying effects on different classes of banks. It is unfortunate, in a general-purpose book of this type, that the chapter dealing with the effects on non-bank financial institutions concentrates primarily on the restriction of the availability of demand deposits as liquid reserves for such institutions, without adequate recognition of the substantial shifts that take place in individuals' inactive demand accounts in response to variations in interest rates. More material on the effects of changing interest rates and security prices on non-bank financial institutions and also on other corporate and individual investors might have been desirable, had space permitted. The omissions, however, are far less significant than the fact that it has been possible to cover so much within the scope of 363 pages.

MONA E. DINGLE

Washington, D.C.

Money, Banking, and Economic Welfare. By PAUL B. TRESCOTT. New York: McGraw-Hill, 1960. Pp. xii+578. $7.50.

Professor Trescott endeavors in his new text to illustrate the importance of money and finance to economic welfare. Descriptive materials pertaining to institutions and legislations are minimized. Emphasis is placed instead on analysis of monetary forces and their bearing upon the level of aggregate spending.

The organization of this text is to be especially commended. Monetary theory is introduced at an early point. Students are thus prepared to utilize theoretical concepts in later sections dealing with past and present-day policy.

Part I describes the evolution of money and the position of money in our economy. Here the functioning of the price mechanism and the concept of the circular flow of income and expenditures are also explained.

Part II examines the nature of commercial banks, the structure of the monetary system, and the monetary significance of the Federal Reserve System and the Treasury. The tools of the Federal Reserve System are investigated, along with the effects of Treasury actions on the money supply.

Monetary theory is developed in Part III. A major portion of this section is devoted to the determinants of the level of total spending and the relationships of the interest rate, cash balances, and the money supply to total spending. Trescott evolves a theoretical framework in which the interest rate and Gross National Product are simultaneously determined by the propensities of individuals to hold assets, borrow, and spend. Monetary theory and income theory are in this way integrated into a meaningful whole.

Part IV surveys the positions of households, business firms, financial institutions, and government in the saving-investment process.

The international aspects of money and finance are analyzed in Part V. Of particular value is the discussion of the international economy from the early nineteenth century to the present day.

After a historical review of money and monetary policy in the United States (Part VI), Part VII takes up current problems of monetary policy. The objectives and techniques of monetary policy are evaluated. There is also consideration of criticisms of recent actions of the Federal Reserve System and of the contribution of monetary policy to economic stability.

The reviewer believes that Trescott has made a significant addition to the list of textbooks in the field of money and banking. Those instructors desiring to base their course on a strong theoretical foundation, with the objective of analyzing the impact of monetary policy on economic welfare, will do well to consider this work.

DON C. BRIDENSTINE

San Diego State College

Public Finance

Federal Receipts and Expenditures during Business Cycles, 1879–1958. By JOHN M. FIRESTONE. Princeton: Princeton University Press, 1960. Pp. xvi+176. $4.00.

John Firestone has analyzed the behavior of federal budget receipts and expenditures by months for each of the business cycles since 1879. Five time periods have been included in the analysis: the ten business cycles from 1879 to 1914; the four interwar cycles, 1921–38; the wartime cycles of 1919–21 and 1945–49; and the 1954–58 cycle. The standard technique of analysis of the National Bureau of Economic Research has been employed. For each of the categories of cycles, the average standing of the expenditures and revenue series in the nine time stages of the reference cycles has been computed. In addition, Firestone has calculated the indexes of conformity to the business cycle for the direction of change of the expenditures and the several revenue series.

The results of Firestone's study are well summarized in Geoffrey Moore's Foreword and in chapter 2. A major conclusion is that peacetime budgets for the period studied have been characterized by surpluses in prosperity and deficits in depression. Thus, even before the conscious public policies of the 1930's and later, the peacetime budget operated as a relatively modest contracyclical force. Another finding is that the surpluses during booms and deficits during depressions have resulted primarily from the cyclical increases and decreases in revenues rather than from countercyclical movements in expenditures. Moreover,

the growing importance of the income tax as a source of revenue has intensified the cyclical swings in revenues and consequently their impact upon the economy.

In contrast to the behavior of peacetime cycles, during the expansion period of the wartime cycles of 1914–19, 1938–45, and 1949–54 the increase in federal expenditures greatly exceeded the increase in tax revenues, leading to deficits or declines in surpluses. And in the contraction periods immediately following the three wars, the budget moved toward a surplus largely because of the marked cutback in expenditures. The pattern of the surpluses and deficits in the 1919–21 and 1945–49 cycles resembled that of the other peacetime cycles but for different reasons. In the expansion phases, surpluses were generated as expenditures declined, while revenues were relatively stable; in the contraction phases, deficits appeared as expenditures stabilized or rose, while revenues declined.

Another point of considerable interest is that more often than not tax rates have been changed inversely with the cycle in the peacetime cycles since 1879. Total revenues, however, have been more responsive to changes in general business conditions than to alterations in tax rates.

This book supplies the quantitative evidence to document the countercyclical contribution of the federal cash budget over the last 80 years. It is unfortunate, however, that the only cash series available since 1879 excludes payments into and out of trust funds, so that the total impact of federal budgetary policy on the national income in the more recent fluctuations was not investigated. Nevertheless, the facts developed in this volume provide a useful, if not noteworthy, addition to our knowledge of the business cycle.

KENNETH D. ROOSE

Oberlin College

Erosion of the Personal Income Tax Base in Canada and the United States. By IRVING JAY GOFFMAN. Toronto, Canada: Canadian Tax Foundation, 1959. Pp. iii+194. $1.50 (paper).

This paper-bound, offset-printed volume is the second in the series of doctoral dissertations on Canadian public finance published by the Canadian Tax Foundation. The dissertation, which was written at Duke University, seeks to compare the erosion of the income tax bases in the United States and Canada. Erosion is defined as escape from regular income tax rates of any items which fall within the Simons concept of income. The various sources of erosion, including exclusions, capital gains treatment, personal and business deductions, and exemptions, are reviewed and analyzed in some detail.

Primary emphasis is placed on equity, in terms of a rigid criterion that any departure from taxation of all income, as defined, constitutes inequity. While many conclusions that Goffman reaches, such as those relating to depletion, are widely accepted, others, such as the undesirability of personal exemptions, are contrary to usual views. Under commonly accepted standards of equity, the ability to adjust income tax liability in terms of numbers of dependents, medical expenses, and the like constitutes a significant advantage of this form of tax. To Goffman equity requires taxation of all income virtually without adjustment; by more usual standards a properly adjusted base is preferable to an unadjusted one. Goffman is entitled to his own views of equity, but he seeks to give them a scientific validity which value judgments cannot possess.

Similarly, while the deductibility of charitable contributions may be questioned, Goffman ignores the point of view that if there is a strong consensus in contemporary society that governments should use tax adjustment to encourage giving to charity, it is difficult to condemn the policies in any scientific fashion, as he seeks to do. He stresses the danger to morale of continued erosion—admittedly a real danger—but he ignores completely the morale reactions to elimination of deductions whose desirability is widely accepted.

While, on the whole, the study is competent, it contributes very little to a further understanding of the question. Primarily it repeats the analysis of Simons, Vickrey, Perry, and various papers in the Ways and Means *Tax Revision Compendium* of 1959. While a comparison of United States and Canadian practice is useful, this constitutes only a small fraction of the volume and could have been presented in a journal article. The Canadian Tax Foundation policy of publishing theses has great merit. But it is suggested that in the future the Foundation evaluate the dissertations carefully before accepting them for publication, and it should edit them to improve the wording, to condense sections which merely repeat widely known material, and to eliminate numerous footnotes which may be expected in a dissertation but are hardly necessary in a published volume. Finally, addition of an index would facilitate use.

JOHN F. DUE

University of Illinois

Federal Income Taxation: Tax Principles and Tax Planning. By ROBERT S. HOLZMAN. New York: Ronald, 1960. Pp. vii+700. $8.00.

"Instruction in how the Federal income tax works" is the objective of this textbook. The point of view is that of the taxpayer with his eye focused upon the minimizing of taxes by legitimate means, whether the taxpayer be an individual, corporation, or other.

Coverage is wide, including major provisions of the federal income tax as related to each of the several types of taxpayers. This closely packed book begins with a description of what is considered to be income for internal revenue purposes, defining items such as ordinary income and capital gains, and prescribing the treatment of inventories in arriving at profits. It goes on to specify the chief kinds of deductions; among these are repairs, research, depreciation and depletion allowances, deferred compensation and stock option plans, carrybacks and carry-overs. Following chapters deal with special treatment of individuals and of various types of organizations, such as corporations, partnerships, estates and trusts, and special regulations pertaining to those engaged in foreign operations. After this the student is ready to study the actual computation of the tax and the procedures in filing returns and in negotiating or litigating tax matters. The author then presents the tax effects of instalment selling, sales with lease-back arrangements, and other techniques used in buying and selling. The concluding chapter brings together the many considerations indicated earlier that should be weighed in so arranging one's affairs that the tax impact may be at its least.

Because of the necessity for careful and precise legal definition, this book does not provide light reading. However, its general tone is enlivened by a liberal sprinkling of illustrations clarifying the application of tax law. Frequent cita-

tions to the Internal Revenue Code, Revenue Regulations and Rulings, and court decisions permit the student to pursue his investigations further if he wishes to do so. Questions and problems at the end of each chapter are excellent. Useful, too, will be the eleven tax forms reproduced in an appendix and the several tax and withholding tables presented earlier in the volume.

Advanced students of business administration, toward whom the textbook appears to be primarily directed, should gain much from its use. This is a highly concentrated and rather technical text but clear and comprehensive. It will make demands upon the student and will require some familiarity with business practice and with legal terminology.

Holzman has confined himself to providing an understanding of the manner in which income taxation is actually applied. This is a big task in itself, but it would seem desirable that the student also consider, at least briefly, why and how the tax law got to be as it is and the effects it has upon business operations and the economy as a whole. Such considerations are taken up in only a few connections (e.g., in a short introduction to carry-backs and carry-overs), perhaps in the expectation that the student will encounter these aspects of income taxation in classroom discussion or elsewhere in his training.

In any event, this book is designed to show the taxpayer how to play the game within the limits of an existing set of highly complicated rules. It does this very well indeed.

KATHERINE FINNEY

Connecticut College

Income Tax Exemptions. By MICHAEL E. LEVY. Amsterdam: North-Holland Publishing Co., 1960. Pp. xii+148. $4.00.

"The purpose of this study," as described by the author, "is to provide an extensive and systematic analysis of income tax exemptions and tax rate changes with special emphasis on the impact on the average rate, the degree of tax progressivity, and incentives to work." The treatment is theoretical, with little attention to institutional details. Certain United States statistics are used for illustrative purposes.

Levy distinguishes initial exemptions, vanishing exemptions, and continuing exemptions. All three provide full exemption for income up to a certain level. For higher incomes the initial-exemption system taxes the whole income, including the amount of the initial exemption; the vanishing exemption declines as income increases, and ultimately disappears; the continuing exemption remains constant, and the system taxes only the amount by which income exceeds the exemption. The initial exemption is a special case of the vanishing exemption. Levy shows, moreover, that under a progressive tax a linearly declining (vanishing) exemption can be translated into an equivalent system with a continuing exemption and somewhat different rate brackets. He therefore considers continuing exemptions the most important from the theoretical point of view. They are also the most common in practice. Readers should notice, however, that a continuing-exemption system can duplicate a vanishing-exemption system only by providing separate rate schedules for all possible numbers of exemptions.

Chapter iv compares the incentive effects of exemption changes and rate

changes. Exemption changes do not alter the marginal rates of taxpayers who remain in the same bracket. With fairly wide brackets, as in the United States, most taxpayers may experience no substitution effect from a moderate change in exemptions but only an income effect. An across-the-board change in rates will have substitution effects and income effects for all taxpayers. This observation furnishes the basis of a detailed examination of possible influences on the amount of work under various assumptions about the relative strength of the substitution effect and the income effect at different income levels.

The presentation is careful and orderly, and the author shows commendable powers of exposition. The text is supported by ingenious graphs and tables and by several mathematical appendixes. Specialists will find the book a useful analysis of personal exemptions under the income tax.

RICHARD GOODE

Brookings Institution

The Oil Depletion Issue. By JOHN H. LICHTBLAU and DILLARD P. SPRIGGS. New York: Petroleum Industry Research Foundation, 1959. Pp. x+148. $2.60 (paper).

The authors succeed in making clear the background and substance of the long controversy over the depletion deduction allowed producers of crude oil and natural gas in the determination of their federal income tax obligations—a deduction equal to 27.5 per cent of income from the sales of these products, but not exceeding 50 per cent of net profit computed without the depletion deduction. The writing is clear, there are many tables and charts, and numerical illustrations clarify points difficult to treat adequately with verbal explanations. The major facts in the development of the controversy are well presented: the successive changes in legislation, court decisions, the attitudes of Presidents Roosevelt, Truman, and Eisenhower, latter-day moves in Congress to discontinue "percentage depletion" and to reduce the percentage allowable, the approval of the 27.5 per cent rate by the Paley Commission, and the now general sanction of percentage depletion throughout the minerals extraction industry (but at rates ranging from 23 to 5 per cent).

But Lichtblau and Spriggs do more than present the facts of the controversy. The greater part of their volume is devoted to a defense of percentage depletion for oil and gas, although little of this defense is specifically directed to the 27.5 per cent rate. One gets the impression that they would go along with some reduction in the rate, were it not for their fear that any reduction would be a step toward the ultimate elimination of percentage depletion. Even in their defense of the percentage-depletion principle itself, they do not avoid opinions and facts that tend to weaken their position. They do not expand upon the opposition arguments, but, at least, attention is directed to them.

They mention the stand of Senator Couzens and Dean Griswold for discovery-cost depletion, the repeated recommendation of President Roosevelt for the repeal of percentage depletion, and President Truman's recommendation for a cut in the rate to 15 per cent. They cite Treasury estimates of added federal revenues of $775 million annually if percentage depletion were disallowed, and of $325 million if the depletion rate were cut to 15 per cent (in both instances,

after allowance for probable loss of tax revenue on account of reduced dividends paid by the producers). And they quote Senator Douglas' statement that "only about three per cent of the depletion allowances is taken by corporations or individuals with assets of less than a million."

The authors' basic argument in favor of percentage depletion is the need of the producing companies to invest each year great sums of money in developing existing properties and in exploration to keep ahead of the ever increasing demand for oil and gas—now, by far, our most important energy source. Reduced depletion deductions would mean reduced investment of retained earnings and therefore a much greater need to draw in outside investment funds. But the reduction in the depletion allowance would make the securities of the producers much less attractive to investors. Some or all of the reduction in the depletion allowance might be made up by higher prices, but this, too, would not advance public welfare in a country where both industry and consumers are so heavily dependent on oil and gas.

The authors do not examine the alternative of having the producers pay taxes on the basis of cost depletion—receiving, therefore, no special concession here—and having the federal government provide subsidies to help meet the costs of development and exploration. A system wherein subsidy payments could be evaluated against results would seem to deserve consideration. They do say that the oil and gas producers have not been supported by government stock-piling expenditures, permissions for rapid write-offs for depreciation, and defense minerals exploration loans; and they add that the oil-producing industry "has met the Defense Department's request for an excess producing capacity equal to at least 15 per cent of annual consumption, *without any governmental assistance.*" (Italics supplied.) That is one way of looking at it.

RAYMOND P. KENT

University of Notre Dame

Public School Finance: Its Background, Structure, and Operation. By PAUL R. MORT, WALTER REUSSER, and JOHN W. POLLEY. 3d ed. New York: McGraw-Hill, 1960. Pp. x+512. $7.50.

This book could stimulate the accomplishment of a recent recommendation of the Committee for Economic Development: "Citizens working for better schools should improve their own effectiveness."[1] In *Public School Finance* permanent citizens' committees could learn the constitutional framework in which public schools operate; they could obtain a historical background of current community responsibilities, both legal and fiscal; they could secure material which would be helpful in stimulating referenda on tax rates and bond issues; and they could learn how to be more effective in budget hearings.

There is also another purpose of this third edition, which ". . . reflects to a considerable degree the maturation of public school finance that proceeded at a rapid rate in the turbulent fifties" (p. vi). It is a college text which covers (1) major components of the legal-fiscal community structure and their roles in school finance (pp. 1–190); (2) state and federal participation in school

1. Paul Lazarus, *We Can Have Better Schools* (New York: Committee for Economic Development, 1960), p. 11.

support (pp. 191–328); and (3) operational finance, consisting of current practical procedures, such as "Budgeting School Funds," "Financial Accounting," and "Auditing, Reporting, and Safeguarding School Funds" (pp. 329–504).

Both for college students and for the present older citizens who are seriously engaged in becoming more effective in school management, the questions at the end of each chapter in *Public School Finance* are excellent. They should aid group discussion, particularly under the guidance of professional assistance. The two following examples show the background knowledge and additional research necessary for intelligent group participation in school administration:

> What has been the history of the development of state aid in your state? Can you identify the effects of the various stages through which thinking in this field has evolved? [P. 220.]
>
> How much of the state aid for education in your state goes back to the communities from whose taxpayers it came? [P. 236.]

The authors present, in the objective manner of a consultant, many complicated topics, such as "The Equalization Objective" (chap. 13, pp. 238–54) and "Design for State Aid Systems" (chap. 14, pp. 255–73). The chapters tend to be complete entities—a method of presentation which encompasses certain repetitions. Such writing is advantageous to the solution of a practical problem, since the person needing guidance will usually find his related reading confined to one, or a few, chapters. However, the style of writing is "heavy," and sometimes certain words, such as "posture," are repeated too frequently (see chap. 1).

The authors do not seem to occupy an authoritative position in the presentation of federal tax statistics (chap. 10). This chapter, entitled "Federal Sources of Revenue," contains two tables of federal tax collections, neither of which is secured from the primary source, the *Annual Report of the Commissioner of Internal Revenue*. Furthermore, the authors present an involved discussion of the difficulty of determining the incidence, by state of residence, of all federal tax collections (pp. 186–87). This is indeed true as far as excise and corporation income taxes are concerned. However, no recognition is given to a significant state distribution of the major source of internal revenue, namely, individual income tax returns. In the annual volumes of *Statistics of Income, Individual Income Tax Returns*, also prepared by the Internal Revenue Service, the total income tax liability, as reported on the final individual income tax returns, is tabulated by the state in which the taxpayer lives. For the income year 1957, from returns due to be filed on April 15, 1958, this income tax liability was estimated to be $34.4 billion.[2]

Regarding "Federal Financing of Education," no one should challenge the objective treatment of this subject, which is expressed in the first three sentences in the summary of chapter 17, which read: "The part that the federal government has played in financing schools has been a varied one. In recent years there have been several attempts to see its place in the structural pattern. At present there is still conflict with respect to the proper role" (p. 326).

Washington, D.C. HELEN F. DEMOND

2. Source: *Statistics of Income, 1957, Individual Income Tax Returns* (Washington, D.C.: U.S. Treasury Department, Internal Revenue Service), Table 14, "Selected Sources of Income, Adjusted Gross Income, Taxable Income, and Income Tax, by States and Territories," p. 53.

Real Estate Finance

Federal Credit and Private Housing: The Mass Financing Dilemma. By CHARLES M. HAAR. New York: McGraw-Hill, 1960. Pp. xxxiii+408. $12.50.

Professor Haar, of the Harvard Law School, has provided a very useful study of one of the most important aspects of our economic structure. The work constitutes a useful handbook of the history of the role of the federal government in the housing credit market in the last thirty years and in the present situation. Haar is a realist, who accepts the indefinite continuation of a dominant role for government in the housing field. As he sees it, the chief way in which government will initiate and direct housing activity is through the guaranty of loans for essentially 100 per cent of cost. The type and location of housing will depend on what housing the government stands ready to insure. Substantial equity investment in housing, with an eye to profit, has essentially no future role. The palliatives of the great depression, the exigencies of war, the control of rents, the special measures to prevent postwar recession, concern for the presumed welfare of veterans, and public desire for certain groups of the population to consume housing services of amounts and qualities different from what it is thought they would acquire in the market place, have involved the government inextricably in this great segment of the economy. Furthermore, the vested interests of lenders, builders, brokers, and others appear to these groups, at least in the short run, to depend on the indefinite continuation of a dominant government role.

But, while Haar accepts, apparently with little reluctance, the dominant role of government, he does advocate certain alterations of the role. He would like the government participation to be less a handmaiden of the builders and the lenders and to be more effectively directed toward serving the distributional purposes which he believes Congress has recently had in mind.

Haar is not, on the whole, pleased with the record of government guaranty of home-improvement loans. He finds that a very small portion of such loans over the quarter-century of their history has been for the purpose of improving homes which are in most need of improvement. He thinks there is much to be said for elimination of the Title I house-improvement loans (p. 329).

In a chapter of conclusion, Haar has listed his suggestions for improving the government system of house credit insurance. In the main, he appears to feel that the system as it has operated during the last two or three decades has adhered too closely to what the lenders and builders conceived to be their immediate interest. This policy has done little for the housing of the lowest-income classes and minority groups. Haar does not seem to hold in very high esteem the theory that housing benefits will filter down.

One may infer from this book that the guaranty programs as they have operated have contributed substantially to the deterioration and decay of the older residential areas. Through concentration upon new construction in the suburban areas and the further embellishment of these same homes, lenders, owners of old properties, and builders have been motivated to neglect the old central cities. Thus the guaranty programs as carried out have contributed substantially to city decay, a problem to the solution of which it is believed new and heroic efforts of the federal government must be directed.

If the social objectives which the Congress has said it wishes to achieve with respect to housing are to be gained through FHA, "special formulas will have to be devised because the present package of incentives is not achieving such ends." It is proposed that insurance of properties designed for high-income classes should be made substantially less attractive than insurance for other groups. HHFA should be given cabinet status. Costs of credit might be reduced by "rewriting the unwieldy foreclosure laws in effect in some states" (p. 342).

HOMER JONES

St. Louis, Missouri

BOOKS RECEIVED

BRAZER, HARVEY E. *A Program for Federal Tax Revision.* Ann Arbor: University of Michigan Institute of Public Administration, 1960. Pp. 50. $1.50 (paper).

While the author does not expect his specific proposals to meet with general approval, he has contributed toward pointing up some of the major issues to be considered in a revision of the federal tax structure.

BROWNLEE, O. H. *Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits.* Minneapolis: University of Minnesota Press, 1960. Pp. iv+45. $1.50 (paper).

The effects of the state and local government taxes and expenditures on different income classes in Minnesota are estimated by various methods in this report.

BRY, GERHARD, assisted by CHARLOTTE BOSCHAN. *Wages in Germany, 1871-1945.* Princeton: Princeton University Press, 1960. Pp. xxvi+486. $10.00.

After chapters on wage trends, wage structure, and cyclical behavior, special attention is given to wages during war, inflation, and dictatorship and to a comparison of wages in Germany, Great Britain, and the United States.

BRYCE, MURRAY D. *Industrial Development.* New York: McGraw-Hill, 1960. Pp. xvi+282. $7.50.

Quite different from the mass of academic and speculative writings on the subject, this book is a practical manual for all those concerned with the actual preparation, analysis, or appraisal of industrial projects in, or for, underdeveloped countries or regions.

CHEN, KUAN-I. *World Population Growth and Living Standards.* New York: Bookman Associates, 1960. Pp. 93. $4.00.

Emphasizing the situation in Latin America, Africa, and Asia, the author explains the effects of rapid population growth, which has resulted in a diet at which between eight- and nine-tenths of mankind are still grossly underfed.

COLE, G. D. H. (ed.). *Classics in Economics.* New York: Philosophical Library, 1960. Pp. xxxi+324. $6.00.

These readings, grouped into three sections ("Production and Distribution," "Money and Trade," and "Work and Welfare"), are presented with an introductory preface and accompanied by comments prepared by Professor Cole.

COMMERCE CLEARING HOUSE. *1960 Federal Law Changes.* Chicago: Commerce Clearing House, 1960. Pp. 80. $1.00 (paper).

The full text of the three omnibus laws, as well as the provisions of the other 1960 income and excise tax acts, are included in this report.

CROSSER, PAUL K. *State Capitalism in the Economy of the United States.* New York: Bookman Associates, 1960. Pp. 158. $4.00.

The joining of state capitalism to private capitalism in the United States (through transfer of fiscal funds to, and utilization of public controls by, private interest groups) raises the question of whether this development can be kept within non-authoritarian bounds.

CROTEAU, JOHN T. *A National Central Credit Society.* Madison, Wis.: Credit Union National Association, 1960. Pp. 47 (paper).

The society discussed in this study is a proposed financial institution which would be incorporated under federal law for the primary purpose of providing a source of liquidity for the credit-union system.

ESPENSHADE, EDWARD B., JR. (ed.). *Goode's World Atlas.* 11th ed. Chicago: Rand McNally, 1960. Pp. xii+288. $7.50.

This is the up-to-date edition of a work which through frequent revisions has served as a standard school atlas for almost four decades.

FELLNER, WILLIAM. *Emergence and Content of Modern Economic Analysis.* New York: McGraw-Hill, 1960. Pp. xiv+459. $7.50.

For intermediate economic theory courses, this new text presents modern micro- and macrotheory, including business cycles, economic growth, and the essentials of welfare economics.

GRAYSON, C. J., JR. *Decisions under Uncertainty: Drilling Decisions by Oil and Gas Operators.* Boston: Harvard Business School, 1960. Pp. xiv+402. $6.00.

This valuable contribution to capital budgeting and decision theory first describes in detail the nature of decision problems in drilling for gas and oil, including the manner in which decisions are actually made, and then considers at length the application of some of the new decision-theory principles to assist operators in arriving at judgments in situations of extreme risk and uncertainty.

GROSSMAN, GREGORY. *Soviet Statistics of Physical Output of Industrial Commodities.* Princeton: Princeton University Press, 1960. Pp. xiii+151. $4.50.

First in a series of studies on Soviet economic growth inaugurated by the National Bureau of Economic Research, this volume is concerned with the compilation and quality of Soviet statistics. It analyzes the obstacles to an accurate and unbiased flow of information which constitute a problem to the Soviet administrator as well as to outsiders.

HOCKWALD, W., STRINER, H. E., and SONENBLUM, S. *Local Impact of Foreign Trade: A Study in Methods of Local Economic Accounting.* Washington, D.C.: National Planning Association, 1960. Pp. xviii+213. $7.00.

The more accurate methods developed by the authors for measuring the impact of foreign trade on a community indicate that the indirect effects of foreign trade may outweigh its more direct effects. Three communities with varying problems and situations are selected for detailed analysis.

HOLDREN, BOB R. *The Structure of a Retail Market and the Market Behavior of Retail Units.* Englewood Cliffs, N.J.: Prentice-Hall, 1960. Pp. xii+203. $4.50 (trade); $1.00 (text).

The author develops his model in this interesting dissertation after first determining the decision variables which the entrepreneurs in the particular market studied believed were open to them.

JOHNSTON, J. *Statistical Cost Analysis.* New York: McGraw-Hill, 1960. Pp. ix+197. $6.75.

After reviewing theories of cost-output relationships, problems involved in the statistical estimation and testing of these relationships are discussed, and statistical cost analyses for seven different industries are presented. The author concludes with a summary of the empirical evidence and a critique of the critics of statistical cost studies.

KETCHUM, MARSHALL D., and KENDALL, LEON T. (ed.). *Conference on Savings and Residential Financing.* Chicago: U.S. Savings & Loan League, 1960. Pp. 182 (paper).

The report of this third annual conference deals with mortgage rates, factors determining housing volume, the impact of monetary policy, policies needed to stimulate saving and other problems of concern to the loan business.

KNIGHT, W. D. *Property Taxation and the Wisconsin Tax System.* Madison: University of Wisconsin, 1960. Pp. 134. $1.15 (paper).

This study concludes that there is a need for property tax relief in the sense that Wisconsin property taxes are high by either historical or interstate standards, and it offers specific recommendations for tax revision.

LENT, GEORGE E. *The Changing Structure of Commercial Banking.* Hanover, N.H.: Amos Tuck School of Business Administration, Dartmouth College, 1960. Pp. 30. Gratis (paper).

Based on a study made for the American Bankers Association, this bulletin traces recent trends in unit and branch banking, banking concentration (including the factors leading to bank mergers and holdings companies), legislation to curb further concentration of control, and the geographic redistribution of banking resources.

LEVESON, J. H. (ed.). *Electronic Business Machines.* New York: Philosophical Library, 1960. Pp. 272. $15.00.

The 19 chapters of this work are presented in three sections: "Programming for Business Purposes," "Business Management and Electronic Data Processing," and "Computer Equipment and Applications."

LINK, ROBERT G. *English Theories of Economic Fluctuations, 1815–1848.* New York: Columbia University Press, 1959. Pp. viii+226. $5.00.

Dr. Link finds that most types of modern cycle theory appeared in at least rudimentary form during the first half of the nineteenth century. This close analysis of a half-dozen writers of the period fills a gap in existing histories of economic thought.

MACHINERY AND ALLIED PRODUCTS INSTITUTE AND COUNCIL FOR TECHNOLOGICAL ADVANCEMENT. *Cost Reduction and Profit Improvement.* Washington, D.C.: Machinery and Allied Products Institute, 1960. Pp. 67. $2.00 (paper).

Seven business executives stress the need for cost reduction as a corporate way of life at a time when costs are rising and selling prices are either stable or on the decline.

MARCUS, EDWARD and MILDRED. *Investment and Development Possibilities in Tropical Africa.* New York: Bookman Associates, 1960. Pp. 286. $7.50.

This book, the first of a series of studies on Africa, analyzes the problems confronted by the investor and delineates the areas to which large-scale foreign capital should flow.

MEIER, ROBERT C., and ARCHER, STEPHEN H. *An Introduction to Mathematics for Business Analysis.* New York: McGraw-Hill, 1960. Pp. x+283. $6.95.

For readers who have had courses in algebra and trigonometry, this book presents a useful discussion at the intuitive, rather than rigorously formal, level of such areas as linear algebra, calculus, and probability, employing business examples.

MICHAL, JAN M. *Central Planning in Czechoslovakia.* Stanford, Calif.: Stanford University Press, 1960. Pp. xii+274. $5.75.

The trends in Czechoslovakia's economy during the first decade of Communist control are compared with those in Western European market economics, the United States, and some Communist countries, to evaluate the results of central planning in a highly industrialized country.

PACKARD, VANCE. *The Waste Makers.* New York: David McKay Co., 1960. Pp. x+340. $4.50.

The author's concern with waste makers relates primarily to those who are in the private sector, rather than the government sector, of the economy.

SCHOECK, HELMUT, and WIGGINS, JAMES W. (ed.). *Scientism and Values.* Princeton, N.J.: Van Nostrand, 1960. Pp. xvi+270. $6.50.

This critique by twelve scholars of the tendency toward a "collectivistic system staffed by a burgeoning and well-meaning elite of social engineers" should be required reading for welfare statists and advocates of government direction for achieving "full" employment, growth, stability, "togetherness," "adjustment," "rational order," and so on.

SPENGLER, JOSEPH J., and ALLEN, WILLIAM R. (ed.). *Essays in Economic Thought: Aristotle to Marshall.* Chicago: Rand McNally, 1960. Pp. 800. $7.50.

This is a valuable book of supplementary readings for courses in the history of economic thought. Its thirty-one chapters consist of essays previously published in various journals and encyclopedias which are not easily available for class assignments.

STEDRY, ANDREW C. *Budget Control and Cost Behavior.* Englewood Cliffs, N.J.: Prentice-Hall, 1960. Pp. xiii+161. $4.50. (trade); $1.00 (text).

Three approaches to the problem of budgetary control are presented here: a mathematical systems model of individual behavior; an empirical investigation of the performance of individuals under varying budget conditions; a linear programming formulation dealing with some of the planning and co-ordinating aspects of budgeting.

TAYLOR, OVERTON H. *A History of Economic Thought.* New York: McGraw-Hill, 1960. Pp. xix+524. $7.75.

The development of economic thought from the Physiocrats through the Keynesians is presented here against the background of the changing social philosophies associated with its evolution.

TERBORGH, GEORGE. *Sixty Years of Business Capital Formation.* Washington, D.C.: Machinery and Allied Products Institute, 1960. Pp. 17. $1.50 (paper).

The author concludes that current levels of capital expenditure are inadequate, considering the impending increase in the growth rate of the labor force and the intensified competition of the Soviet Union, and that there is an evident need of tax reform to encourage saving and capital accumulation.

TRONCOSO, MOISÉS P., and BURNETT, BEN G. *The Rise of the Latin American Labor Movement.* New York: Bookman Associates, 1960. Pp. 179. $5.00.

The only treatment of the subject in English, this book gives special attention to developments since World War II and examines the close tie-in between unions and politics in Latin America.

TSE, JOHN Y. D. *Profit Planning through Volume-Cost Analysis.* New York: Macmillan, 1960. Pp. x+240. $7.95.

The first part of this work explains the various uses of volume-cost analysis. Part II deals with the factors underlying successful application of formal systems. Actual case examples are included in the appendixes.

VIDAL, MAURICE. *Introduction au contrôle de la publicité.* Paris: Dunod, 1960. Pp. vii+113. NF 8.50.

Concerned with the measurement and the control of the efficiency of advertising, this compact introduction is characterized by the logical organization and the clarity of presentation which distinguish the publications of French scholars.

CLYDE WILLIAM PHELPS

University of Southern California

ADDITIONS TO THE 1959 *MEMBERSHIP DIRECTORY*

In July, 1959, the American Finance Association published its 1959 *Membership Directory*. The following members joined the Association between November 1, 1960, and February 15, 1961. Addresses and occupations of new members may be secured from Professor George E. Hassett, Jr., Secretary-Treasurer, American Finance Association, New York University, New York.

NEW ACTIVE MEMBERS

Adachi, Tetsuro
Amling, F.
Anderson, Donald L.
Arnold, S. R.
Brimmer, Andrew F.
Burrough, David
Chou, Victor
Connors, Edward J.
Davis, Leslie E.
DeGulis, Albert J.
Devine, Eugene J.
Escolas, Edmond L.
Ganz, Alexander
Gillies, James
Gustafson, Dale
Hartley, Delmar D.
Hartnett, Edgar
Hedges, John T.
Hellweg, Douglas R.
Hutton, Winfield
Jones, Sidney
Kaplan, Marshall
Komarynskyj, Jaroslaw
Knudson, Edward
Kleinman, David
Langlois, Yves
Litawa, William S.
Menendez, José Antonio
Miller, Eugene
Montreuil, Lucien
Nilsen, James B.
Norgaard, Richard
Oppenheim, E. Magnus
Otto, Ingolf H. E.
Paine, Neil R.
Pogarian, Harold A.
Riddle, Bruce Z.
Rose, Justin
Schweitzer, Robert N.
Selden, Richard T.
Shiffman, Max
Simons, Donald F.
Southard, Frank A., Jr.
Trotter, S. E.
Tueting, Robert C.
Ulseth, George
Wicks, John H.

NEW SUBSCRIBING MEMBERS

Bolinsky, Edward
Graff, E. G.